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TO

THE RIGHT HONOURABLE

THE EARL OF CARLISLE,

Chief Commissioner of Her Majesty's Woods, Forests, &c.,

UNDER WHOSE AUSPICES

THE ROYAL GARDENS OF KEW

HAVE ATTAINED TO THEIR PRESENT DEGREE OF EMINENCE,

The Present Volume

IS DEDICATED,

WITH SENTIMENTS OF THE HIGHEST REGARD AND ESTEEM,

BY HIS FAITHFUL AND OBEDIENT FRIEND AND SERVANT,

THE AUTHOR.

SHOUT
SHARE
IT

CURTIS'S

BOTANICAL MAGAZINE,

COMPRISING THE

Plants of the Royal Gardens of Kew,

AND

OF OTHER BOTANICAL ESTABLISHMENTS IN GREAT BRITAIN;

WITH SUITABLE DESCRIPTIONS;

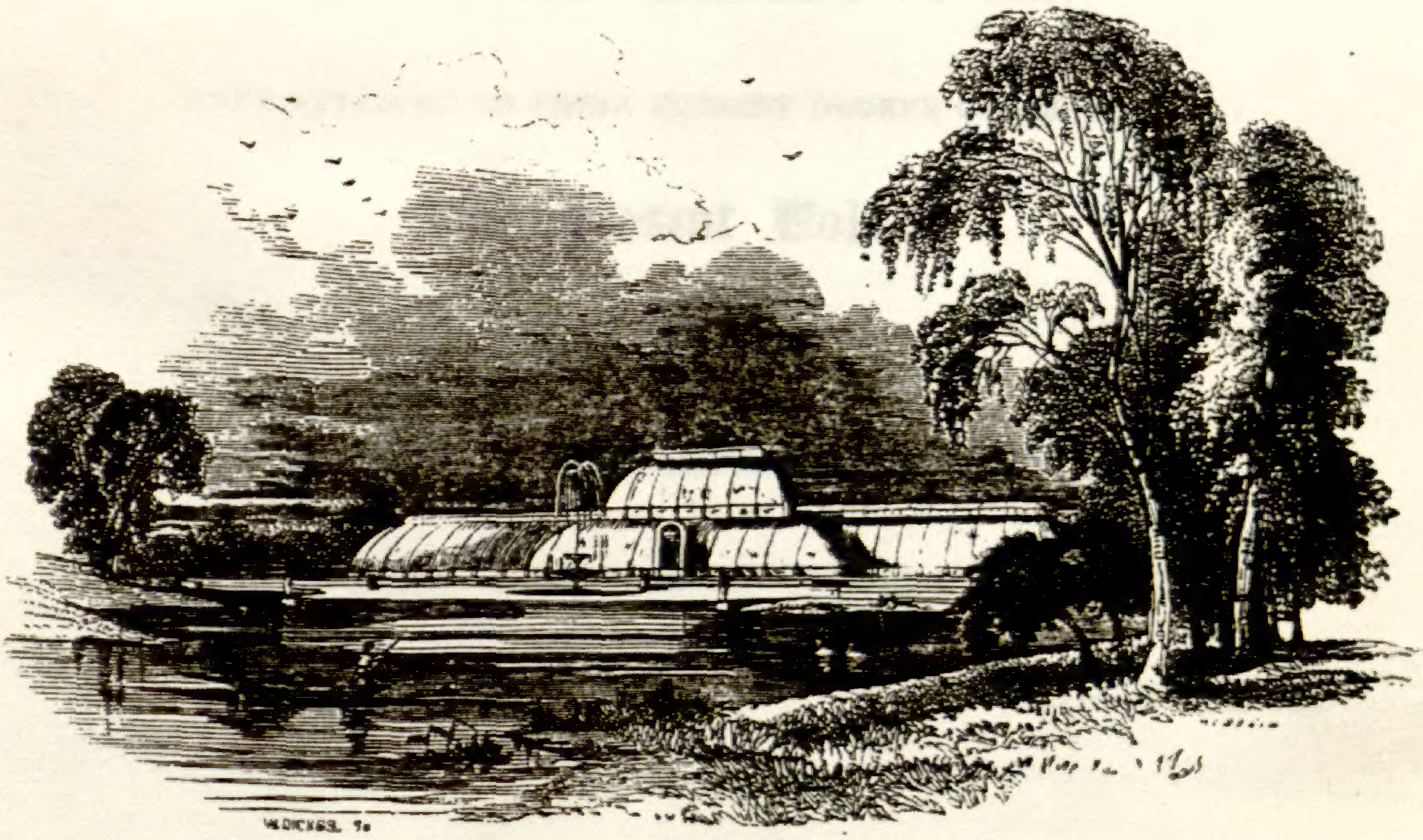
BY

SIR WILLIAM JACKSON HOOKER, K.H., D.C.L. OXON.
LL.D., F.R.S., and L.S., Vice-President of the Linnæan Society, and Director of the Royal Gardens of Kew.

VOL. IV.

OF THE THIRD SERIES;

(*Or Vol. LXXIV. of the Whole Work.*)



> "He scarce had said, when the bare earth, till then
> Desert and bare, unsightly, unadorned,
> Brought forth the tender grass, whose verdure clad
> Her universal face with pleasant green;
> Then herbs of every leaf, that sudden flowered,
> Opening their various colours, and made gay
> Her bosom, smelling sweet."

LONDON:
REEVE, BENHAM, AND REEVE, KING WILLIAM STREET, STRAND.

1848.

LATIN

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TO

THE PLANTS CONTAINED IN THE FOUR VOLUMES OF THE THIRD SERIES,

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TO

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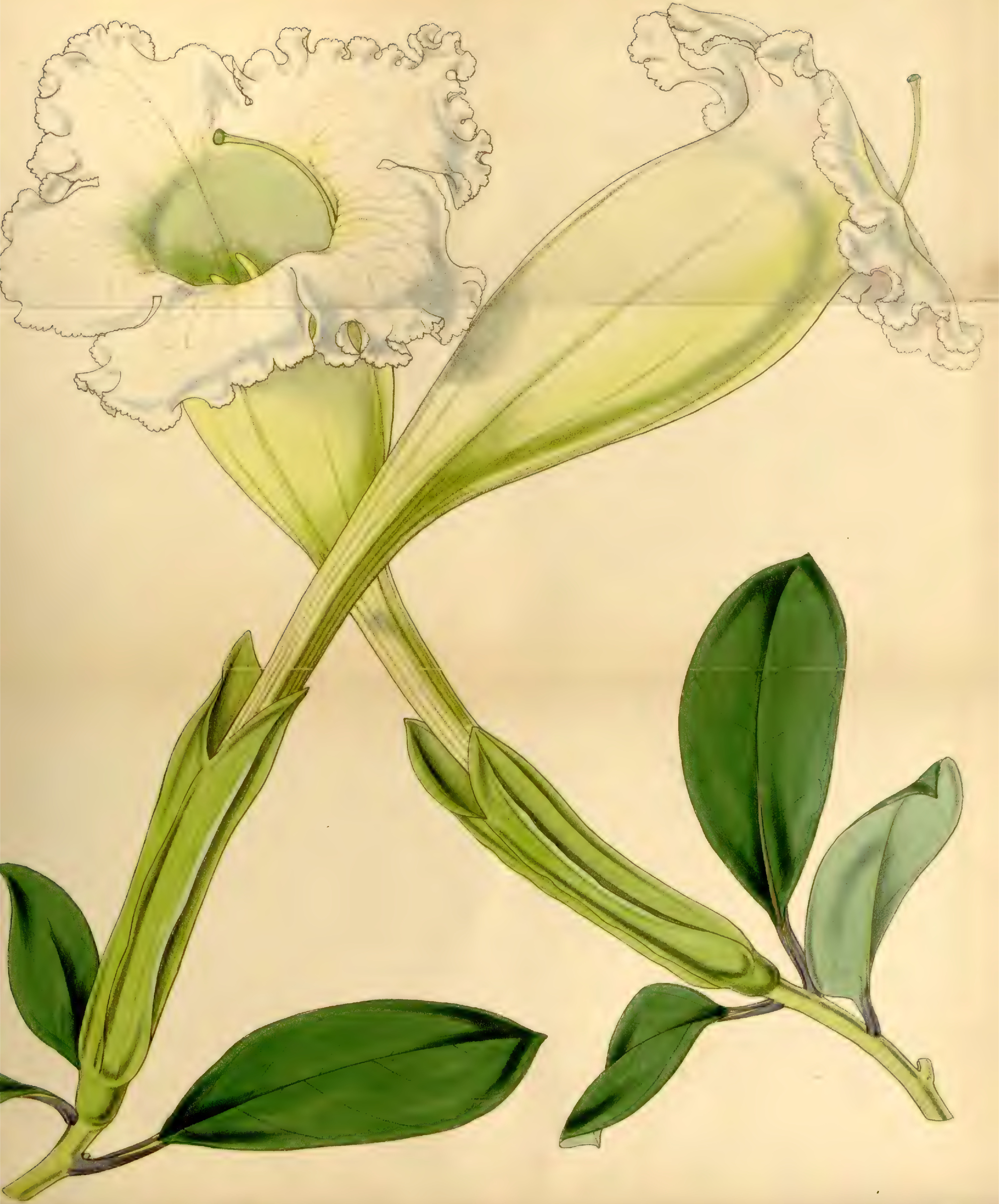
73	4282	Niphæa, white-lined.
71	4148	Oncidium, two-warted.
72	4272	Odontoglossum, halberd-leaved.
74	4357	Orothamnus, Mr. Zeyher's.
74	4367	Oxypetalum, Solanum-like.
74	4406	Passion-flower, white-crowned.
74	4368	Pelican-flower.
73	4319	Peristemon, Mr. Gordon's.
71	4156	Peristeria, or Dove-flower; Humboldt's; tawny-flowered *var.*
73	4289	Pharbitis, purging.
71	4173	Phyllarthron, Mr. Bojer's.
72	4262	Pleroma, elegant.
74	4412	—— Prof. Kunth's.
71	4142	Pleurothallis, double-keeled.
72	4241	Pitcairnia, broad-waved-leaved.
73	4285	Pitcher Plant, Sir Stamford Raffles'.
71	4161	Polystachya, bracteated.
71	4176	Porphyrocoma, lance-leaved.
74	4356	Primrose, Stuart's.
73	4280	Purga, or True Jalap.
73	4309	Puya, Attenstein's gigantic *var.*
71	4199	Reevesia, thyrse-flowered.
73	4336	Rhododendron, Javanese.
74	4381	—— Neelgherry.
71	4198	Rhynchoglossum, Ceylon.
74	4400	Rose of Jericho.
71	4147	Ruellia, lilac-flowered.
73	4298	—— Mr. Purdie's.
73	4318	Sage, white-flowered.
71	4196	Scævola, attenuated-leaved.
74	4360	Sida, entire-leaved.
71	4134	—— heavy-scented.
71	4170	—— Pæony-flowered.
72	4227	—— vine-leaved.
72	4212	Sinningia, velvety.
74	4403	Siphocampylos, manettia-flowered.
72	4331	—— glandular.
71	4178	—— showy scarlet-flowered.
73	4286	—— small-mouthed.
72	4268	Skull-Cap, flesh-coloured.
73	4299	—— heart-leaved.
72	4271	—— Ventenat's.
71	4154	Slipper-wort, copious-flowering.
74	4364	Smeathmannia, downy.

Vol.	*No.*	
71	4194	Smeathmannia, smooth-stalked.
73	4283	Smithia, purple-flowered.
74	4345	Solandra, smooth-leaved.
74	4394	Sonerila, upright.
71	4197	Stanhopea, tiger-spotted.
72	4263	Stenocarpus, Mr. Cunningham's.
71	4167	Strelitzia, great white.
71	4168	
74	4366	Strobilanthes, milky-leaved.
74	4416	Swainsona, Grey's.
72	4215	Swanwort, Mr. Loddige's.
71	4187	Tacsonia, downy-leaved.
72	4251	Talauma, De Candolle's.
74	4383	Tetrazygia, Elæagnus-like.
72	4239	Theophrasta, Jussieu's.
73	4303	Thibaudia, beautiful.
73	4344	—— Pichincha; glabrous *var.*
74	4378	Thyrse-flower, upright.
73	4288	Tillandsia, bulbous; coloured *var.*
72	4249	Torenia, large-flowered.
72	4229	—— purple-blotched.
73	4335	Tritonia, golden.
71	4158	Trumpet-Flower, scarlet.
71	4137	Turnera, Elm-leaved.
73	4334	Vanda, crested.
72	4211	Vervain, Bastard, aristate.
72	4269	Virgin's Bower, or Clematis, tubular-flowered.
74	4415	Vriesia, glaucous-leaved.
74	4382	—— showy.
73	4275	Water-Lily, great Victoria.
73	4278	
74	4396	Weigela, rose-coloured.
71	4155	Whitfieldia, brick-coloured.

4345



TAB. 4345.

SOLANDRA LÆVIS.

Smooth-leaved Solandra.

Nat. Ord. SOLANEÆ.—PENTANDRIA MONOGYNIA.

Gen. Char. Calyx tubulosus, 3–5-fidus, persistens. *Corolla* hypogyna infundibuliformi-ventricosa, limbo plicato quinquefido, lobis undulatis. *Stamina* 5, corollæ tubo inserta, adscendentia, erecta; *antheræ* longitudinaliter dehiscentes, versatiles. *Ovarium* incomplete 4-loculare, dissepimento altero supra medium deliquescente, altero completo, prope angulum parietalem utrinque placentifero, placentis porrectis multi-ovulatis. *Stylus* simplex; *stigma* subcapitatum. *Bacca* calyce demum hinc fisso cincta, 4-locularis, pulposa. *Semina* plurima, reniformia. *Embryo* intra albumen carnosum arcuatus.—Frutices *Americæ tropicæ, sarmentosi; foliis in apice ramulorum confertim alternis, obovato-oblongis, integerrimis, subcarnosis; floribus terminalibus, solitariis, maximis. Endl.*

SOLANDRA *lævis*; foliis obovato-ellipticis glaberrimis lævibus, calycis bilabiati tubo 5-angulato-alato labiis subæqualibus acutis, corollæ albæ tubo calycem duplo excedente 5-costato sursum ampliato ventricoso, ore contracto, limbi patentis reticulatim venosi lobis margine undulato-crispatis.

SOLANDRA lævis. *Hortul.*

Of the four species of *Solandra* described by authors, not one accords with the present; nor is any now in cultivation to be compared with it, for the size and beauty and fragrance of the blossoms. It was received from Messrs. Lucombe, Pince and Co., in November, 1847, under the name here adopted, by which it was obtained by those gentlemen from the Continent, without any indication of its introduction into Europe, or of the country of which it is a native: a practice unfortunately general, and which cannot be too strongly condemned. Messrs. Lucombe and Pince find its cultivation extremely easy in a moderately warm House, requiring nothing but the ordinary treatment of stove plants. Its somewhat climbing stems grow best, trailed round a cylindrical trellice. Young plants, not two feet high, produce these noble blossoms. The leaves are thick and glossy, and form an agreeable contrast with the coarse foliage of other *Solandræ*.

DESCR. A *shrub* of dwarfish habit, two feet long, branched, with long and trailing branches; *branches* glabrous, as is every part of the plant, terete, the younger ones herbaceous, indicating a rapid growth. *Leaves* alternate, small in proportion to the size of the shrub, at least on those flowering branches which we have alone seen, oblong-oval, or somewhat obovate, acute, entire, smooth on both surfaces, dark green above, paler beneath, penninerved; the *petioles* from half an inch in length, purple. *Flowers* very large, almost a foot long, solitary, terminal. What may be called the peduncle is extremely short and thick, jointed unto the apex of the branch, not half an inch in length. *Calyx* four inches long, tubular, two-lipped at the extremity, five-angled, the angles expanding into wings towards the lower part of the calyx: lips entire, acute. *Corolla* nearly thrice the length of the calyx, funnel-shaped, greenish cream-colour, white at the limb: the lower half of the tube is slender, striated, the upper half bell-shaped, but contracted at the mouth, with five ribs becoming very slender near the mouth and there branched and reticulated: *limb* spreading, deeply five-lobed, the lobes reticulated, singularly crisped and waved at the margin. *Stamens* included. *Style* exserted about an inch beyond the mouth of the tube. *Stigma* convex and a little dilated.

4346.

TAB. 4346.

HYPOCYRTA GLABRA.

Shining-leaved Hypocyrta.

Nat. Ord. GESNERIACEÆ.—DIDYNAMIA ANGIOSPERMIA.

Gen. Char. *Calyx* liber profunde 5-partitus, lobis lanceolatis integerrimis. *Corolla* tubulosa, basi postice gibba, tubo antice ventricoso, limbo 5-lobo aut 5-dentato subæquali. *Stamina* 4 didynama, cum quinto postici rudimento ex ima basi tubi. *Antheræ* per paria cohærentes. *Annulus hypogynus* et glandula postica. *Stigma* bilobum (aut infundibuliforme indivisum?). *Bacca* globosa succosa 1-locularis, placentis 2 parietalibus bilobis. *Semina* ∞ oblonga aut ovata.—Fruticuli *Brasilienses extensi et radicantes, rarius erecti.* Folia *opposita crassiuscula.* Flores *axillares solitarii aut aggregati.* Corollæ *coccineæ, roseæ, albæ, aut ochroleucæ. D.C.*

HYPOCYRTA *glabra*; erecta, foliis ellipticis obtusis nitidis obsoletissime hirsutis subenerviis brevi-petiolatis, pedunculis axillaribus aggregatis (2–3) unifloris basi bibracteatis, calycis lobis serratis, corollis anticis grosse ventricosis inferne brevissime constrictis, limbo contracto 5-dentato.

HYPOCYRTA glabra. *Hortul.*

Although in words it may be difficult to define the distinction between the present species of *Hypocyrta glabra* and *H. strigillosa* (figured at Tab. 4027 of this work), yet the two plants are clearly distinct, and the eye will at once detect the differences. I may observe that the present is of shorter and stouter growth, the stem purple; the leaves shorter, almost exactly elliptical, obtuse, of a thicker texture, with very indistinct nerves, and still more indistinct hairs: the corollas have the lower and constricted portion of the tube shorter, and they want the radiating yellow lines around the mouth. The shape of the corolla in the *H. strigillosa* reminds one of the Pouter Pigeon, that of the present species of the Globe Fish (*Diodon*). It grows readily in stove heat, treated like other Gesneriaceous plants, and flowers in June and July. The Royal Gardens owe the possession of it to Mr. Malkoy of Liege, and it is said to have been imported from South America.

DESCR. Our plant has an unbranched, erect, rather stout, succulent, dark purple, terete *stem*, eight to ten inches high, very obscurely pilose. *Leaves* opposite, elliptical, obtuse, on short *petioles*, glossy, entire or very obscurely serrated, to the eye appearing glabrous, whence the specific name, but under a lens showing very minute hairs on the surface and margin. *Peduncles* one to three in the axils of the leaf, longer than the petioles, with a pair of linear *bracts* at the base. *Calyx* with the segments serrated. *Corolla* with a very short constriction at the base of the tube, the colour a rich scarlet, except the small *limb*, which is orange-yellow. *Stamens* and *pistil* as in *H. strigillosa*.

Fig. 1. Calyx including the pistil. 2. Ovary and bifid, large, hypogynous gland:—*magnified*.

COMPANION

TO THE

BOTANICAL MAGAZINE.

Notice of Mr. Drummond's *discovery of three remarkable plants in South-West Australia.*

We have much interesting matter to lay before our readers from the correspondence of Mr. Drummond; but at this time we must content ourselves with a brief extract from one of his letters written from Cape Riche, Jan. 10, 1847, while on an extensive botanical journey from Swan River to King George's Sound.

"I determined," he says, "to enjoy another view from the top of Mongerup. I hid our supply of flour and pork as well as I could, in case of a visit from the natives: I had now to bring water from the native well. Starting at five o'clock, I reached the highest summit of the hill by eleven. I ascended by the N.E. angle, and at about the height of 2,000 feet I found, first making its appearance, a splendid *Banksia*, with leaves more than nine inches long, and about five wide, irregularly jagged and sinuated like those of an English Oak. To this noble shrub I have given the specific name of *Hookeri*. From the remains of the flowers, they appear to have been scarlet. I had scarcely time to make myself acquainted with this fine *Banksia*, when I found another exceedingly interesting and beautiful plant, a species of *Genithyllis*, growing to the size of, and having a considerable resemblance in habit and foliage to *Beaufortia decussata*, but with the inflorescence inclosed by beautiful bracts, white, and variegated with crimson veins; these bracts are as elegantly formed as the petals of the finest tulip, and are almost as large, hanging in a bell-shaped form from the ends of the slender branches. I thought I could never gather enough of this charming plant; and I procured abundance of perfect seeds. As one is obliged to employ the hands as well, and almost as often, as the feet, in ascending or descending these very steep hills, I had gone very lightly equipped: I was therefore compelled to use my shirt and neck-handkerchief (making the shirt into a bag), to bring down a supply of *Banksia* cones. Securing the load so as not to impede the use of my hands, I reached our sleeping place at three o'clock, much fatigued with my load, but highly gratified; having this day found at least two plants, which will continue to be admired while a taste for the beauties of nature remains to the human race."

In another part of this letter he writes: "West Mount Barren was distant about ten miles. Just before I reached this sleeping place, and afterwards in greater abundance between it and Mount Barren, I found a most extraordinary plant, a species of *Hakea*, growing twelve or fourteen feet high: the true leaves of the plant are seven or eight inches long, jagged and sinuated as in *Hakea undulata*, but by far the most conspicuous part of the foliage of this superb plant are its bracts, which make their appearance with the flower-buds. When the plant is three or four years old, they are borne in regular whorls, each circle or whorl being from seven to nine inches in height, formed of five rows, which have each five bracts; the lowest bracts of the whorl are the broadest, and vary from four to five inches, the whole breadth across, in full-grown, middle-sized specimens, being about ten inches; and they regularly decrease in size to the uppermost bracts, which are only about four inches across from outside to outside; each whorl is a year's growth of the plant after it bears the first flowers. The variegation of these bracts is so extraordinary, that I almost fear to attempt a description. The first year they are yellowish-white in all the centre of the bracts, and the same colour appears in the veins and in the teeth, which grow on the margin; the second year, what was white the first year has changed to a rich golden-yellow; the third year, what was yellow becomes a rich orange; and the fourth year, the colour of the centre of the same bracts, their veins and marginal teeth, are turned to a blood-red. The green, which has a remarkably light and luminous appearance the first year, varies annually to deeper and darker shades; and the fourth year, when the centre of the bracts has acquired a blood-red colour, the green of the same series is of the richest hue, while the whorls below change to darker and duller shades, until they ultimately fade into the dull and withered leaves of other climes. The flowers I have not seen: the stem and buds of the upper series, which are the only ones unopened, are white and velvety; the other series contain seed-vessels, mostly with perfect seeds. To this, the most splendid vegetable production which I have ever beheld, in a wild or cultivated state, I have given the name of our gracious Queen, *Hakea Victoria*. It will soon be cultivated in every garden of note in Europe, and in many other countries. I thought it incumbent on me to send *Hakea Victoria** in some form to my subscribers, and, for this plant, pressure is altogether out of the question, as the bracts break before they will bend in any direction. I tied up sixteen of the bract-bearing tops in two bundles, fastening them together with the creeping shoots of the *Black creeper, Kennedya nigricans,* and slung them one at each side of my old grey poney, Cabbine. The load, although not very heavy, was a most awkward one to get through the bushes, and he never bore anything so unwillingly. One specimen, fourteen feet high, I carried in my hand all the way to Cape Riche; but notwithstanding all the care I took, the brilliant colours in the bracts of this extraordinary plant were much faded before I could get it to King George's Sound."

NELUMBIUM JAMAICENSE; *re-discovered in Jamaica.*

NEARLY, if not quite, a century has rolled away since Dr. Patrick Browne, a Naturalist and Physician resident in Jamaica, detected, and soon after described in his Natural History of Jamaica, a species of *Nelumbium* bearing yellow flowers, different from that of the East Indies, growing in certain lagoons of the island in question: and presenting an equally stately appearance with the splendid and well-known species of the Old World. Strange to say, notwithstanding the researches of succeeding botanists, neither lacking in knowledge nor zeal, the *Nelumbium Jamaicense* has been sought in vain: so that all hitherto known of it has been through the brief account of it by Patrick Browne above quoted. No specimen exists, we believe we are correct in saying, in any Herbarium; and, as the *Nelumbium speciosum* had disappeared from the Nile, where it was formerly known as a sacred emblem, so it has been by many supposed that our plant had been lost to Jamaica; or others believed that Patrick Browne had ignorantly taken some other well-known *Nymphæaceous* plant for a new *Nelumbium.*

We can well conceive, then, with what pleasure our excellent friend, Dr. M'Fadyen of Kingston, Jamaica, must have received the agreeable tidings, in August last, of the re-discovery of this plant by James Dundas, Esq. Dr. M'Fadyen was not long in sending to us roots, and seeds, and beautifully dried specimens of this rarity, and in printing, for private distribution, a full description with an accurate, coloured figure (on a large folio size, as the subject truly deserved), and a second plate of analysis. It must be acknowledged, indeed, judging from a comparison of dried specimens in our Herbarium, that it is very closely allied to the *Nelumbium luteum* of the United States: and if, on further investigation, the two should prove to be identical, we must observe that Patrick Browne's name has the right of priority, although not quite unobjectionable, seeing that it is more frequent in North America than in Jamaica. The specific identity of the two, however, we are not now discussing; nor do we think it necessary here to give the full and excellent *description* of the plant from Dr. M'Fadyen's Memoir: but his remarks are well worthy of being introduced into the supplementary pages of this Magazine.

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* Noble specimens of the three plants here noticed have reached our hands, and bear testimony to the correctness of Mr. Drummond's remarks. The *Banksia* is probably the little-known *B. Solandri,* Br.: the others are quite new.

"I have followed Dr. Lindley," Dr. M'Fadyen remarks, "in describing as a horizontal submersed stem, what others have regarded as the root. Although it grows under the surface of the water, it is free from the mud or soft earth, in which the proper roots or fibrillæ are immersed. It may be remarked that the internal structure of the stem more resembles that of the flower-stalk than that of the petiole: the former supporting more important and complicated organs than the latter. It may also be noticed that these several parts resemble in their internal structure, composed of cellular tissue connecting a number of large air tubes, that of the stem of the CABOMBACEÆ or *Water shields*. In plants of this order the number of air tubes amounts to 15 or 16. On the other hand, in the CABOMBACEÆ there are no spiral vessels, whereas they are remarkably distinct in the NELUMBACEÆ.

"I have no doubt the broad rufescent band which I have described as traversing the under-surface of the leaf, corresponds to that portion which is exposed, when the leaf, in the early period of its growth, is folded up previous to its expansion.

"The peculiarities of the nervation in the leaf are not so distinctly delineated, as they might have been. The broad rufescent band above alluded to, is also indistinctly indicated. It is very obvious, however, in the recent specimen.

"The prolonged portion of the filament is in this species linear and incrassated. In *N. speciosum* it is linear; and in *N. luteum* club-shaped.

"The abortive cell of the carpel, has not as yet been described

4345.

Reeve, imp.

TAB. 4347.

HOYA CINNAMOMIFOLIA.

Cinnamon-leaved Hoya.

Nat. Ord. ASCLEPIADEÆ.—PENTANDRIA DIGYNIA.

Gen. Char. Calyx brevis, pentaphyllus. *Corolla* rotata plus minusve alte 5-fida, laciniis planis v. reflexis æstivatione valvata. *Corona staminea* 5-phylla, foliolis depressis patentibus v. plus minusve gynostegio verticaliter adnatis carnosis angulo interiore in dentem antheræ incumbentem producto. *Gynostegium* breve. *Antheræ* membrana terminatæ. *Massæ pollinis* basi affixæ, oblongæ, compressæ, conniventes, sæpius margine pellucidæ. *Stigma* muticum cum papilla media obtusa v. subapiculatum. *Folliculi* læves v. appendiculis instructi, subpolypteri. *Semina* comosa.—Frutices *v.* suffrutices *Indici v. Moluccani rarissime Africani, volubiles, scandentes aut decumbentes, foliis carnosis v. coriaceis v. membranaceis, floribus umbellatis, umbellis extra-axillaribus sæpius multifloris. D.C.*

HOYA *cinnamomifolia*; glaberrima, volubilis, caulibus ramisque teretibus, foliis carnoso-coriaceis crassis ovatis acuminatis utrinque 5-nerviis, nervis superne prominentibus supra petiolum calloso-glandulosis, pedunculis brevibus, umbellis compactis multifloris, corolla glabra pallide flava, corona stam. foliolis ovatis acutis atro-sanguineis supra planis medio linea elevata.

To Messrs. Veitch and Sons, again, we are indebted for the introduction to our stoves of this new and handsome species of *Hoya*, from Java, whence it was sent by Mr. Thos. Lobb. It flowered in July, 1847. It belongs to the same group of the genus with *Hoya Pottsii*, figured in our Magazine, Tab. 3425; but it has much more showy flowers, and the nervation of the leaves is considerably different.

DESCR. *Stem* long, branched, twining, terete, glabrous, here and there sending out short roots from various portions of its length. *Leaves* opposite, on short, very thick *petioles* (which have a callosity on the top), large, ovate, slightly peltate, acuminate, thick, between coriaceous and fleshy, the margins recurved, five-nerved; the three central nerves very conspicuous both above and below, extending nearly to the summit, the lateral ones less evident. *Peduncle* not half the length of the leaf, bearing a dense hemispherical *umbel of flowers*. *Flowers* large, rather showy from the effect of the different colour of the *staminal crown.*

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Corolla pale yellow-green, rotate, the segments broadly ovate, acute. *Leaflets of the staminal crown* of a deep purple blood-colour, ovate, acute, thick, fleshy, nearly plane above, with a central elevated line.

1348.

TAB. 4348.

GESNERIA PARDINA.

Leopard-spotted Gesneria.

Nat. Ord. GESNERIACEÆ.—DIDYNAMIA GYNOSPERMIA.

Gen. Char. (*Vide supra*, TAB. 4217.)

GESNERIA *pardina*; pubescens, caule erecto crasso subherbaceo tereti ramoso, foliis brevi-petiolatis ellipticis crassiusculis serratis oblique arcte penninerviis supra glabris subreticulatis subtus precipue reticulatim rugosis tomentosis, pedunculis axillaribus solitariis folio brevioribus, calycis tubo ovario adnato turbinato, laciniis amplis acuminatis patentibus, corollæ tubo curvato sursum dilatato basi superne gibboso, ore obliquo, limbo subæquali 5-lobo, lobis patentibus rotundatis, staminibus styloque exsertis.

Drawn from plants in the Royal Gardens of Kew, which were received from Brazil through Mr. Gardner, who detected the species in the Organ Mountains. It is extremely different from any, either published, or, as I have reason to believe, cultivated in our gardens: in general habit it resembles *G. aggregata* (Bot. Mag. tab. 2725), but is much handsomer, and the spotting reminds one of the flowers of *G. Douglasii.* It blossoms, in a moist stove, in October.

DESCR. *Stem,* with us, a foot and a half high, erect, rather stout, terete, brown, slightly downy above, branched. *Leaves* opposite, on short, rather stout *petioles,* patent, elliptical-acute, rather thick, fleshy, strongly serrated, downy above, most so beneath, strongly penninerved; the *nerves* oblique, closely placed, more or less united by transverse nervelets. *Peduncle* axillary, solitary, single-flowered, shorter than the leaves, thickening gradually upwards into the turbinate tube of the calyx, which is adherent with the lower part of the ovary: *calyx-segments* large, acuminate, spreading. *Corolla* an inch and a half or more long, ochrey-red, yellow within, spotted, especially the *limb* and *tube,* internally with deep red. *Tube* curved, yellow, and with a gibbosity at the base above, upwards the tube is gradually dilated: *mouth* oblique: *limb* of five nearly equal, rounded, spreading segments. *Stamens* and *style* exserted: *fila-*

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ments glabrous, arising from the base of the corolla: there is a small, subulate, fifth abortive filament between the two pairs. *Ovary* half-inferior, hairy, with five nearly equal, yellow *glands*. *Stigma* oblique, sub-peltate.

Fig, 1. Pistil and gland:—*magnified*.

4349

TAB. 4349.

CEROPEGIA CUMINGIANA.

Mr. Cuming's Ceropegia.

Nat. Ord. ASCLEPIADEÆ.—PENTANDRIA DIGYNIA.

Gen. Char. Calyx 5-partitus. *Corolla* tubulosa, basi magis minusve ventricosa, subinfundibuliformis, limbo laciniis compressis, ligulatis, erectis, sæpius arcuatis apiceque cohærentibus, haud rare ciliolatis; præfloratione valvata. *Corona staminea* duplici serie campanulata v. rotata, 5–10–15-lobata, lobis antheris antepositis sæpius longioribus, ligulatis, apice sæpissime approximatis conniventibus. *Antheræ* apice simplices, membrana destitutæ. *Massæ pollinis* erectæ, rotundatæ, margine interiori pellucidæ. *Stigma* muticum. *Folliculi* cylindracei, læves, pergamacei. *Semina* comosa. — Suffrutices *v. potius* herbæ *perennes Indicæ v. Africanæ, radice bulbosa, erectæ carnosæ aphyllæ v. sæpius volubiles foliosæ; foliis haud raro carnosulis; floribus paucis aggregatis v. subcorymbosis, virentibus purpureo-violaceo-maculatis, v. rarius concoloribus lutescentibus. DC.*

CEROPEGIA *Cumingiana*; volubilis glabra, foliis ovatis basi subcordatis apice longe attenuatis acutis tenuibus, pedunculis folium medium æquantibus plurifloris, sepalis acutis, corollæ tubo clavato, limbi laciniis oblongis glabris apice cohærentibus, coronæ stam. pilosæ fol. extern. brevibus bifidis inter. ligulato-clavatis exteriora multo superantibus conniventibus.

CEROPEGIA Cumingiana. *Dcne, in De Cand. Prodr. v.* 8. *p.* 643. *Cuming, Herb. Philipp.* n. 447.

Received from Java, by Messrs. Veitch and Sons, through their Collector, Mr. Thos. Lobb. This is clearly the same plant with Mr. Cuming's No. 447, from Manilla, quite agreeing with his specimens in my Herbarium. The discrepancies in the description of the staminal crown of the flower, by M. Decaisne, and that drawn up by me, may be accounted for from the alteration in that part of a fleshy flower by drying and pressure. A stove plant, flowering in August with Mr. Veitch.

DESCR. A glabrous, climbing and twining *plant*, with terete, rounded *stems*, tinged with red. *Leaves* opposite, on rather long, flexuose *petioles*, ovato-acuminate, somewhat membranaceous, cordate at the base, often tinged with brown and with the costa red. *Peduncle* reaching about as far as the middle of the leaf, terminated by a *cyme* of eight to ten *flowers*. *Pedicels* with subulate bracteas at the base. *Calyx* deeply five-partite:

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segments subulate, spreading. *Corolla* one and a half to two inches long: the *tube* contracted in the middle, cream-coloured, the *limb* chocolate purple, with a pale transverse band; the segments connivent, large. *Staminal crown* double; exterior of five short, obtuse, double, slightly incurved teeth; interior of as many elongated, clavato-ligulate ones, connivent, three or four times as long as the outer: all pilose.

Fig. 1. Staminal crown:—*magnified.*

4350.

TAB. 4350.

ACACIA LEPTONEURA.

Slender-nerved Acacia.

Nat. Ord. LEGUMINOSÆ.—POLYGAMIA POLYANDRIA.

Gen. Char. (*Vide Suprà*, TAB. 4306.)

ACACIA *leptoneura*; glabra v. junior canescenti-puberula, ramulis subteretibus, phyllodiis strictis v. flexuosis subulatis tereti-compressis tenuissime striato-multinerviis muticis v. uncinato-mucronatis, pedunculis solitariis geminisve phyllodiis multoties brevioribus, capitulis multifloris, sepalis liberis anguste spathulatis.

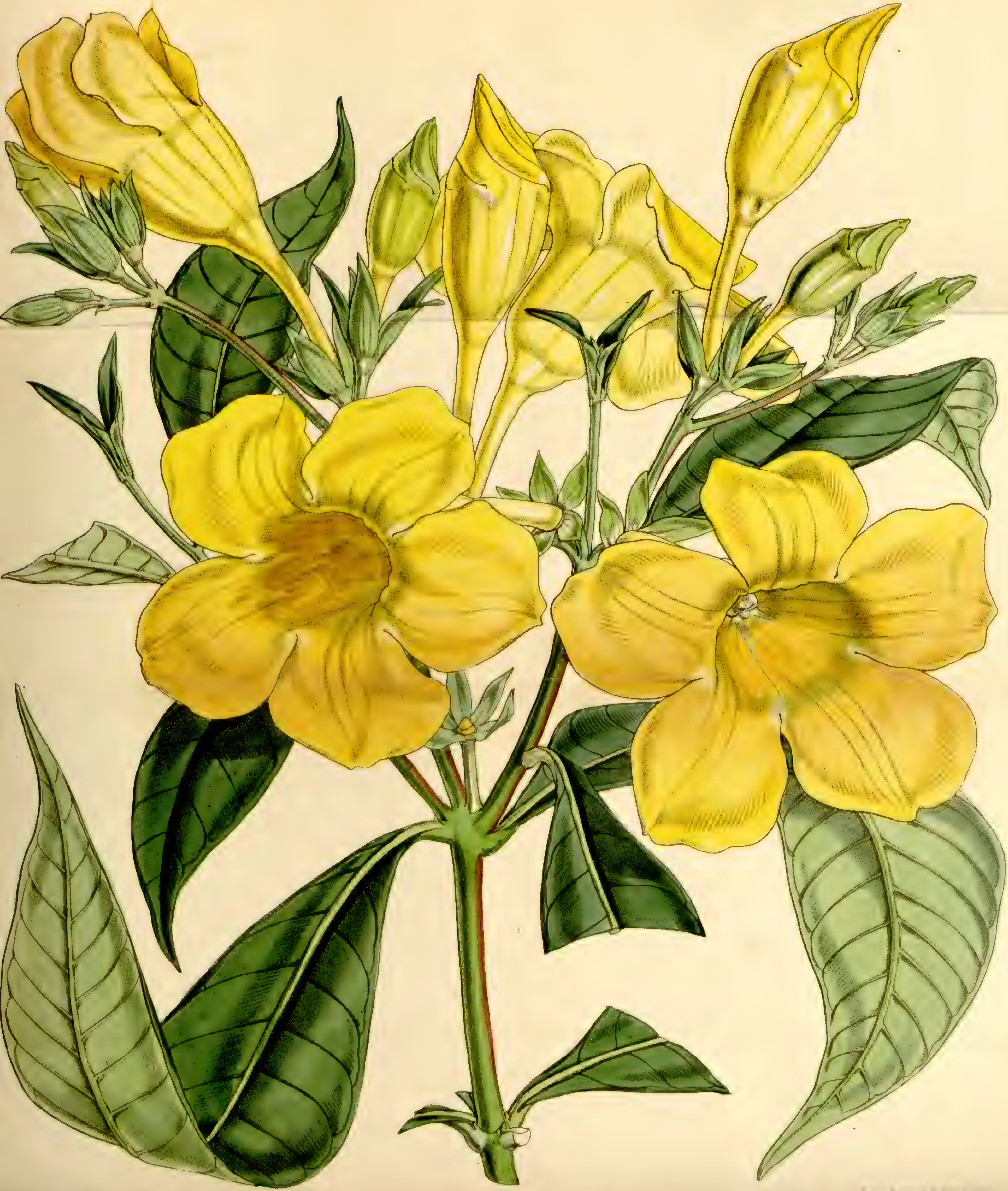
ACACIA leptoneura. *Benth. on Mim. in Hook. Lond. Journ. Bot. v.* 1, *p.* 341.

Where there is space for the display, a good collection of New Holland *Acacias* exhibits some of the most interesting among Green-house plants. The strange variety in the phyllodia (or leaves as they are generally called), the profusion and fragrance of their blossoms, and the season of the year when they are in the greatest perfection, render them eminently worthy of cultivation. The Swan River Settlement, investigated by the industry and discrimination of a Drummond, has contributed to the stores already in our possession from the older parts of our Australian Colonies; and many of the species are eminently worthy of a place in our Magazine. *Acacia leptoneura* recommends itself by its graceful slender branches, loaded with deep orange-yellow heads of flowers, rather than by any striking character in the foliage (phyllodia); except when this latter is magnified, (as shown in a transverse section, f. 3,) and then the circle of air-cells, one beneath each ridge or nerve of the leaf, becomes visible, resembling, in that respect, as well as in the roughness of the superficies of the leaf itself, the joint of an *Equisetum*. The present species flowers in April.

DESCR. A *shrub*, five or six feet high, with very straggling *branches*, which are terete and wavy. *Phyllodia* alternate, two to three inches long, spreading, flexuose, subulate, or rather filiform, with an acuminate, sharp, terete, hooked point, minutely and copiously nerved or striated, rough on the surface when seen under a magnifier: an oblong gland appears above near the base, and at the union with the branch is a pair of scale-like, obovate, membranaceous *stipules*. *Peduncles* solitary, or more frequently geminate from the axils of the phyllodia, but not a sixth part of their length; *heads* many-flowered, globose, of a deep orange-yellow colour. *Calyx* of five, free, loose, minute, spathulate, slightly hairy sepals. *Petals* linear-oblong, acute. *Stamens* numerous.

Fig. 1. Portion of a branch and phyllodium with stipules. 2. Transverse section of a phyllodium:—*magnified.*

4351.



Fitch, del. et lith.

[illegible]

TAB. 4351.

ALLAMANDA SCHOTTII.

Large-flowered erect Allamanda.

Nat. Ord. APOCYNACEÆ.—PENTANDRIA MONOGYNIA.

Gen. Char. *Calyx* 5-partitus, lobis lanceolatis oblongisve, erectis, subinæqualibus eglandulosis. *Corolla* ampla, lutea; tubo basi cylindrico angusto, versus mediam partem abrupte dilatato, fauce ideo campanulata vel infundibuliformi; lobis rotundatis, æstivatione dextrorsum contortis. *Squamæ* faucis bipartitæ, lobis oppositæ, e pilis parum coadunatis constantes. *Antheræ* sagittatæ 5, cum squamis verticillatæ, conniventes, filamentis multo longiores. *Nectarium* carnosum, simplex. *Ovarium* liberum, conicum, glabrum, 1-loculare. *Ovula* ∞, amphitropa, placentis 2 parietalibus adfixa, rotundata, compressa. *Stylus* filiformis. *Stigma* cylindraceum, medio coarctatum, apice bilobum, lobis conniventibus. *Fructus* capsularis, ellipsoideo-compressus, echinatus, valvis 2. *Semina* ∞, deorsum imbricata, in utraque placenta biserialia, rotundata, compressa, margine membranaceo cincta. *Funiculus* brevis; *embryo* intra albumen parcum cartilagineum rectus; *cotyledonibus* foliaceis, ovato-cordatis, funiculum hilumque dorso spectantibus; *radicula* brevissima, acuta, supera.—Arbusculæ *vel* frutices *Americæ meridionalis, caule erecto vel subscandente, foliis verticillatis vel oppositis, raro apice alternis breviter petiolatis, integris; glandulis intra-petiolaribus simplicibus vel bipartitis; cymis terminalibus et axillaribus. DC.*

ALLAMANDA *Schottii*; erecta suffruticosa, ramis pilosiusculis, foliis ternis quaternisve oblongis acuminatis basi angustatis sessilibus glabris, glandulis minutis acutis, pedunculis floribus paniculatis calyceque glabris, lobis calycis lanceolatis acuminatis, fauce infundibuliformi corollæ parte constricta tubi longiore, lobis rotundatis oblique unidentatis.

ALLAMANDA Schottii. *Pohl, Bras. v.* 1. *p.* 73. *f.* 58. *Alph. De Cand. Prodr. v.* 9. *p.* 309.

ALLAMANDA cathartica. *Schrad. in Diar. Gött.* 1821. *p.* 707.

β.; corollæ tubi parte constricta longiore. (TAB. NOSTR. 4351.)

Much confusion exists with respect to the different species of *Allamanda*, of which seven are enumerated in the Prodromus of De Candolle. The *A. cathartica* of Linnæus, which we consider to be the one represented at t. 338 of the present work, is called *A. Linnæi* by Pohl, and it is distinguished as a species from the *Allamanda* of Aublet (*A. Aubletii*, Pohl). These are again united by Alphonse De Candolle: both have scandent stems. *A. cathartica* alone, so far as I know, had been introduced to our collections, till September, 1847, when I had the pleasure of receiving a splendid specimen of a perfectly upright growing species from Mr. J. Stanton, Gardener to R. W. Barton, Esq., Springwood, Manchester. They were raised from seeds, sent by Mr. Graham from Brazil to Miss Barton. Besides the size, beauty, and copiousness of the blossoms, this species has the merit of flowering when little more than two feet high and in eight-inch pots. I think I am right in referring it to *A. Schottii*, Pohl; though, the contracted portion of the tube of the corolla being longer than in that species, it seems better to constitute a variety of it.

Descr. An erect suffruticose plant, everywhere glabrous, save the younger shoots and petioles, very fragile at the setting on of the leaves. The older portion of the *stem* is verrucose. *Leaves* in whorls of three or four, spreading, large, lanceolate, acuminate, tapering below into a short petiole, which bears at its base stipulary glands, small, acute. *Peduncles* terminal and from the axils of the leaves, bearing several flowers forming panicles. *Pedicels* short. *Calyx* deeply cut into five rather large, ovato-lanceolate, acuminate, almost leafy segments or sepals, often with a tooth on one side. *Corolla* very large, of a rich full yellow, infundibuliform: the lower half or rather less forming a narrow contracted *tube*, thence suddenly expanding into a campanulate *faux* (of a deeper yellow in the inside); the *limb* of five rotundate, spreading segments, often with a tooth or angle on one side.

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Reeve, Benham & Reeve

TAB. 4352.

DENDROBIUM SECUNDUM.

One-sided Dendrobium.

Nat. Ord. ORCHIDEÆ.—GYNANDRIA MONANDRIA.

Gen. Char. *Sepala* membranacea, erecta vel patentia, lateralibus majoribus obliquis cum basi producta columnæ connatis. *Petala* sepalo supremo sæpius majora, nunc minora, semper membranacea. *Labellum* cum pede columnæ articulatum vel connatum, semper sessile, indivisum vel trilobum, sæpius membranaceum, nunc appendiculatum. *Columna* semiteres, basi longe producta. *Anthera* bilocularis. *Pollinia* 4 per paria collateralia.—Herbæ *epiphytæ nunc caulescentes, nunc rhizomate repente pseudo-bulbifero.* Folia *plana, sæpius venosa.* Flores *solitarii fasciculati vel racemosi, speciosi. Lindl.*

DENDROBIUM *secundum*; caulibus pendulis, foliis oblongis apice oblique retusis, racemis lateralibus terminalibusque secundis, sepalis ovatis, lateralibus basi in cornu longo obtuso incurvo connatis, petalis supremo paulo minoribus, labello integerrimo acuto apice tumido. *Lindl.*

DENDROBIUM secundnm. *Wall. Cat.* n. 1996. *Lindl. Bot. Reg.* t. 1291. *Gen. et Sp. Orchid.* p. 81.

PEDILONUM secundum. *Blume, Bijdrag.* p. 322.

The East Indian Orchideous plants have assuredly the pre-eminence over those of the New World, beautiful though many of the latter undoubtedly are. Nor is the present *Dendrobium* one of the least handsome among the former. The leaves are copious, but unfortunately not on the same stem with the flowers. *Dendrobium Kuhlii* (Bot. Reg. 1847, tab. 47) is a very nearly allied species. Both are inhabitants of the Malayan islands, and require the usual treatment of tropical Orchideous plants.

DESCR. *Stems* pendulous, elongated, terete, copiously jointed; the joints sheathed by the deeply striated base of the foliage. *Leaves* one to each joint, oblong, or ovato-oblong, acute or obliquely emarginate, costate and faintly striated, firm, coriaceous. *Flowers* copious in long *spikes*, of which one or two arise from the extremity of a leafless stem, all drooping and secund, not much unlike, at first sight, those of some *Hedysarum*, of a deep full rose-colour, paler and nearly white in parts. *Cylyx-sepals* narrow, ovate, acute, concave, the lateral ones running down into a blunt, subconical spur, nearly as long as the sepals. *Petals* resembling the sepals, but rather smaller. *Lip* nearly white, obovato-spathulate. *Column* elongated, broader upwards.

Fig. 1. Entire flower. 2. Portion of a flower, showing the spur, column, sepal, and petal. 3. Labellum :—*magnified.*

4353.

del. et Lith.

TAB. 4353.

ACACIA ONCINOPHYLLA.

Hook-leaved Acacia.

Nat. Ord. LEGUMINOSÆ.—POLYGAMIA POLYANDRIA.

Gen. Char. (*Vide Supra*, TAB. 4306.)

ACACIA *oncinophylla*; glabra v. resinoso-puberula, ramulis angulatis, phyllodiis elongato-linearibus subulatis planis subrecurvo-mucronatis rigidis crassiusculis striato-trinerviis basi angustatis, glandula prope basin obscura, spicis subgeminis breviter pedunculatis cylindricis densis, sepalis liberis spathulatis. *Benth.*

ACACIA oncinophylla. *Lindl. Swan Riv. Bot. p.* 15. *Benth. on Mim. in Hook. Lond. Journ. Bot. v.* 1. *p.* 370.

A very graceful Swan River species of *Acacia*, flowering in the early spring months, and scenting the atmosphere with its agreeable fragrance. The blossoms, in rich yellow spikes, show more numerous upon the branches than are even the leaves, or rather phyllodia. The seeds were sent to us by Mr. Drummond.

DESCR. *Shrub*, with us attaining a height of seven feet, everywhere glabrous or nearly so: *branches*, especially the younger ones, yellow-green, striated. *Phyllodia* scattered, sparse, linear-falcate, submucronato-acuminate, pungent, tapering at the base and at the upper edge, below furnished with an oblong gland. *Stipules* minute, subulate, deciduous. *Spikes* axillary, sessile, geminate, cylindrical, obtuse, shorter than the leaves, of a deep orange-yellow colour, densely clothed with flowers. *Bracteas* small, rotundato-ovate, hairy on the back in the upper half. *Calyx* five-fid, the lobes rounded, spreading, obtuse. *Corolla* none. *Stamens* very numerous, thrice as long as the calyx.

Fig. 1. Portion of a branch, with stipules and the base of a leaf, to show the gland:—*magnified*.

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4354.

TAB. 4354.

CLERODENDRON SCANDENS.

Climbing Clerodendron.

Nat. Ord. VERBENACEÆ.—DIDYNAMIA ANGIOSPERMIA.

Gen. Char. (*Vide supra,* TAB. 4255.)

CLERODENDRON *scandens*; subpubescens, caule volubili tetragono, foliis cordato-ovatis acuminatis membranaceis integerrimis brevi-acuminatissimis, petiolo gracili basi nodoso-articulato, corymbis pedunculatis axillaribus terminalibus paniculam foliosam formantibus, calycibus oblongo-turbinatis semiquinquefidis, segmentis albidis membranaceis ovatis trinervibus, corollæ tubo gracillimo calyce duplo longiore, limbi laciniis obovatis patentibus tubo vix brevioribus, staminibus styloque longissime exsertis corollæ tubo triplo superantibus.

CLERODENDRON scandens. *Pal. Beauv. Fl. D'Ow. et de Ben. v.* 2. *p.* 6. *t.* 62. *Schauer in De Cand. Prodr. v.* 11. *p.* 662.

CLERODENDRON umbellatum? *Poir. Cycl.* 5. *p.* 166.

A very pretty stove *Clerodendron* introduced, together with the following more splendid species, by Messrs. Lucombe, Pince, and Co., Exeter Nursery, from Sierra Leone, through the instrumentality of Mr. Whitfield. The flowers are exceedingly pretty and copious, and the plant is a climber, well adapted for growth on a balloon trellis in a pot. It flowers in December, when the far less beautiful blossoms have great charms. Palisot de Beauvois' figure (and description as far as it goes) is quite characteristic of this plant; but Schauer, in De Candolle, seems to have constructed his specific character from Poiret's *C. umbellatum*, which can hardly be the same species, for neither is our plant "glaberrima," nor are the leaves coriaceous.

DESCR. A graceful climber, with obtusely tetragonous and slightly pubescent *stems* and *branches*. *Leaves* in remote pairs three or four inches long, two or more wide, ovate, entire, membranaceous, with a short but very sharp point, cordate at the base, more or less pubescent, especially on the nerves beneath, and there often tinged with purple. *Petioles* slender, articulated, and nodose, on a projecting tooth of the stem or branch,

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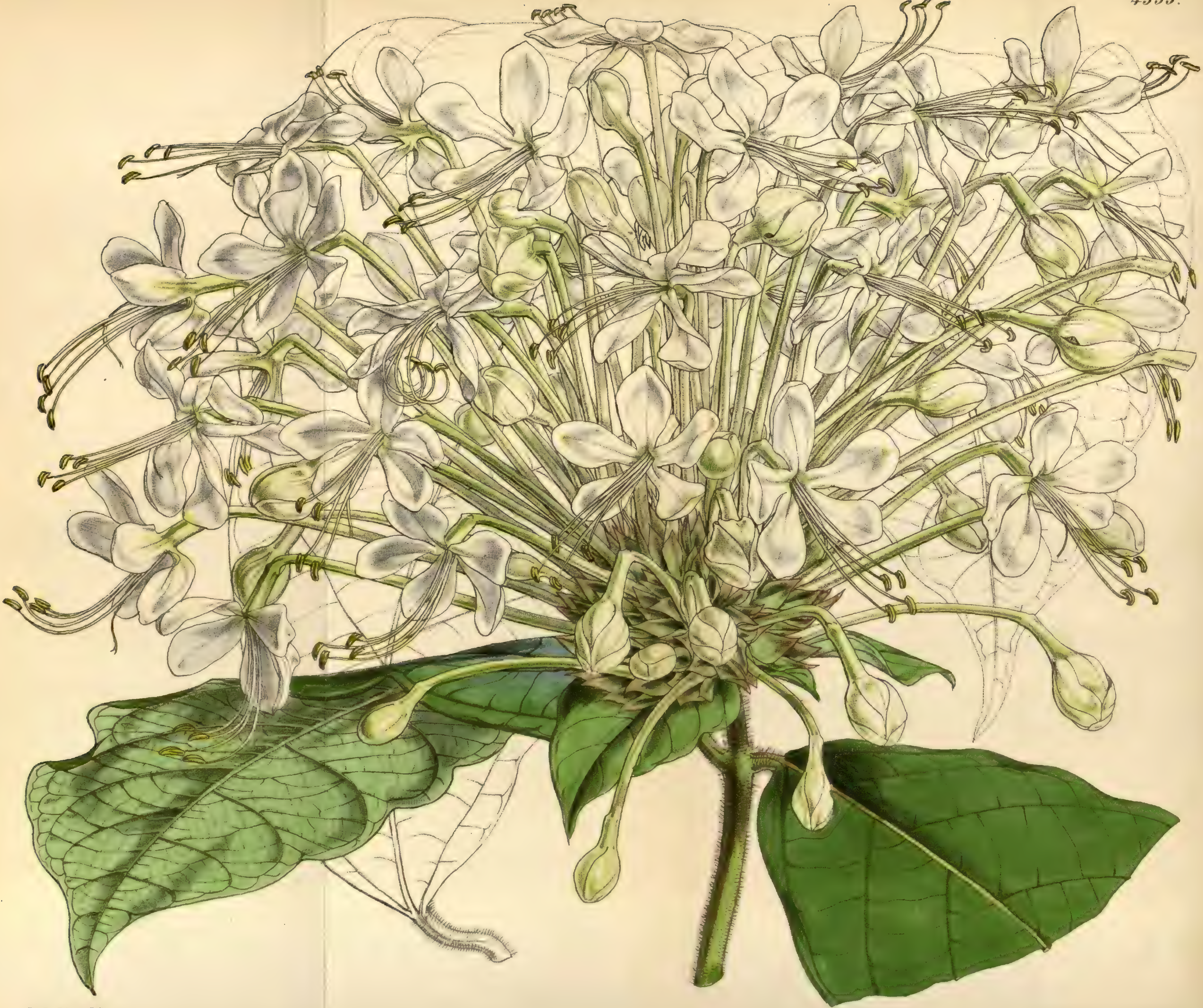
downy. *Peduncles* bearing *corymbs of flowers* from the axils (or rather above the axils—supra-axillary), and extending beyond the leaves; so that the several corymbs form a rather large *panicle*, leafy below. *Pedicels* slender, downy, bracteated. *Calyx* downy, for the most part coloured, that is, white more or less tinged with purple: the segments ovate with three green nerves. *Corolla* very slightly downy, white, beautifully tinged with rose-colour: the *tube* slender, twice as long as the calyx, straight: *limb* of five spreading obovate segments, almost as long as the tube. *Stamens* and style very much exserted and slightly curved upwards.

Fig. 1. Calyx and pistil:—*magnified.*



Fitch, del et lith.

Reeve Benham & Reeve, imp

TAB. 4355.

CLERODENDRON CAPITATUM.

Capitate Clerodendron.

Nat. Ord. VERBENACEÆ.—DIDYNAMIA ANGIOSPERMIA.

Gen. Char. (*Vide supra*, TAB. 4255.)

CLERODENDRUM *capitatum*; ramis junioribus nervisque foliorum (subtus præcipue) ferrugineo-pilosis, foliis amplis brevi-petiolatis obovato-oblongis acuminatis reticulatis margine subsinuato-undulatis, pedunculo ferrugineo hirsuto terminali diphyllo, calycibus dense capitatis ampliatis foliaceo-membranaceis reticulatis ciliatis, corollæ (albo) tubo longissimo curvato piloso-glanduloso infra apicem geniculato, limbi lobis subæqualibus obovatis patentibus, staminibus styloque longissime exsertis.

CLERODENDRON capitatum. *Schumacher, Pl. Guin. v.* 2. *p.* 61. *Schauer, in De Cand. Prodr. v.* 11. *p.* 673.

VOLCKAMERIA capitata. *Willd. Sp. Pl. v.* 2. p. 384.

There never was a period, perhaps, when so many splendid new plants were introduced to our stoves and greenhouses as at the present; and these, it must be confessed, come very much through the instrumentality of our eminent and spirited Nurserymen, and the encouragement given by them to Collectors abroad. The late volumes of the Botanical Magazine will bear me out in this assertion; and the subject now figured is certainly not among the least splendid of recent arrivals. It is from the collection of Messrs. Lucombe, Pince, and Co. of Exeter, and was imported by them through Mr. Whitfield from Sierra Leone. It consequently requires stove heat, and it has the merit of flowering while the plants are small.

Notwithstanding some slight discrepancies, I have every reason to believe this is the *Volckameria capitata* and equally the *Clerodendron capitatum* of Schumacher, more fully described in the Plants of Guinea. It is a species so little known to Botanists that in De Candolle's Prodromus it is placed among "species denuo recognoscendæ." The length and spread of the corollas are so considerable, that at first sight the capitate character is not distinctly visible; but it will be seen that the bases of

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the flowers, the calyces, are collected into a dense head. The fragrance is no less remarkable than the beauty of the flowers and foliage.

Descr. A *shrub*, of handsome growth, with obtusely tetragonous branches; the younger ones almost terete, herbaceous, clothed with spreading fuscous hairs. *Leaves* ample, from four or five inches to nearly a foot in length, the smaller ones subovate, the larger ones obovato-oblong, acuminate, entire, but subsinuate and undulate at the margin, the surface reticulated and somewhat wrinkled, the young ones subpilose, the older ones ferruginously hairy on the nerves, especially beneath: *petioles* short, clothed with ferruginous or brown hairs. *Peduncle* terminal, hairy, like the young branches, short, bearing in our specimen two small *leaves*, and a dense *head* of numerous flowers: the great length and spread of the corollas giving the appearance of an umbel, or almost of a panicle, if the calyces be not inspected. *Calyx* large, lax, deeply cut into five nearly equal, erecto-patent, reticulated, membranaceous segments, hairy, especially at the margin. *Corollas* five inches long! cream-white, glanduloso-pubescent: the *tube* very slender, geniculated below the limb (where the stamens are inserted) and then broader: *limb* of five spreading, obovate, nearly equal segments. *Stamens* and *style* very much exserted, the former curved upwards.

as existing in any other of the species. It is very distinct in this, and I have no doubt will be found to be equally so in the other species.

In the description of the embryo, it is said to be composed of the rudiments of the future leaf, flower, and stem. Here I differ from Gærtner, who regards what I have described as the rudiments of the flower and flower-stalk, as belonging to a second undeveloped leaf. To this I object, that it would be a very unusual circumstance, where there are the rudiments of two corresponding organs, that there should be so much dissimilarity and disproportion between them. On the contrary, as a leaf and a flower invariably arise from each joint of the stem, it is most probable that I am correct in the description I have given.

This interesting plant was first made known to botanists by Dr. Patrick Browne, an Irish physician, who resided for some time in this island, and, as it would appear from his writings, left it in 1754. During his residence, he devoted his attention to the natural history of the Island. He published the result of his observations in a folio volume, entitled "The Civil and Natural History of Jamaica, by Patrick Browne, M.D., illustrated with forty-nine Copper-plates, by Ehret, London, 1789." He informs us, in page 343, that the NELUMBIUM, (or as he styles it NYMPHÆA) the *Egyptian Bean*, or *Great Water-lily*, was, in his time, pretty common in the lagoons beyond the Ferry. "It grows," he informs us, "in loose boggy ground, where the leaves may stand in open air, while the roots and lower part of the stems are plentifully supplied with moisture." Dr. Browne appears to have been under the impression that our plant was identical with the sacred *Water-bean* of the Egyptians. Since his time, the plant appears from some cause to have become more scarce, and to have escaped the notice of the different botanists who have visited this Island. It seems very unlikely that Swartz, Bertero, as well as many others, should have met with it and passed it over without some notice.

Since my arrival in the Island, I took every opportunity of searching for the plant. Dr. M'Nab, also, and Mr. Purdie, the collector for the Kew Gardens, now of Trinidad, frequently visited the locality on a similar errand, passing through the canals of the lagoon in a boat, without any success. Early in August, James Dundas, Esq., (the manager of Taylor's Caymanas Estate,) while carrying out some improvements connected with the draining of the land of that property in the vicinity of the lagoon, unexpectedly came upon this beautiful plant, and, as he had on former occasions, assisted in the kindest manner, our searches for it, he immediately concluded that he had at length lighted on what we had been so long in search of. He collected specimens of the flowers and other parts of the plant, and brought them to my residence in Kingston. I doubt not every cultivator of our "fair science" must sympathise in the pleasure with which I regarded this beautiful Water-Lily. How much more delightful would be the surprise to encounter it in its native solitudes, where the hand of Nature has planted and reared it, amid the mangroves and the tall reeds, overshadowing with its magnificent leaves and flowers the still waters of the lagoon, recalling the description of Una in the Fairy Queen :—

> " ——— Her angel-face
> As the great eye of heaven shined bright
> And made a sunshine in the shady place."

Some general remarks on the FLORA OF CEYLON ;

BY

GEORGE GARDNER, Esq., F.L.S.
Director of the Royal Botanic Garden, Paradenia, Ceylon.

ALTHOUGH Ceylon is celebrated for the luxuriant vegetation by which it is covered, the plants which compose it are less known to botanists than those, perhaps, of any other portion of India of equal extent. While the history and uses of the vegetable productions of the possessions of the East India Company, and most of the islands of the Indian Archipelago, have been given to the world by modern botanists, those of Ceylon are at the present day nearly as little understood in Europe as they were one hundred years ago, when Linnæus published his "Flora Zeylanica," founded on collections which had been made in the Island by Hermann, a Dutch botanist, about seventy years before. It is true that during the last few years the descriptions of several Ceylon plants have been published in different scientific periodical publications, both by Indian and European botanists ; but although a botanical institution has been maintained in the colony, at the expense of Government, for upwards of the last thirty years, those who have superintended it have done almost nothing either for their own credit or the honour of the establishment. Since the publication of the little book of Linnæus, the only work which has been produced on Ceylon botany is the "Catalogue of Plants growing in Ceylon," published in

1824, by Mr. Moon, who was the Superintendent of the Botanical Gardens,—a work which never was of much use, and which is now quite obsolete, for being merely a catalogue, there are no characters by which to recognise the species he has enumerated. As connected with these observations, I may remark that I am at present engaged in preparing a book which will contain descriptions of all the vegetable productions indigenous to Ceylon, at least so far as I can obtain them, illustrated with coloured figures of some of the more rare, beautiful, or useful species. This, however, will be a labour of several years to come, as I have still to explore different parts of the Island, the productions of which are totally unknown.

The vegetation of all countries has its general character determined by two great principal causes—physical aspect and climate. The former having already been detailed in the preceding geological sketch of the Island, I shall here offer a few remarks on the latter. The two monsoons which occupy the greater part of the year, materially influence the climate. That from the south-west lasts generally from April to September, while the north-east prevails from November to February, the intervening periods being subject to variable winds and calms. The western side of the Island, which is exposed to the south-west monsoon, enjoys a humid and temperate climate, similar to that of the Malabar coast; while the eastern, which is open to the north-east monsoon, has a hot and dry climate, similar to that of the Coromandel coast. The seasons and climates of the south-west and north-east portions of the Island are therefore very different. While on one side of the Island the rains are falling in torrents, the other is suffering from drought; and it not unfrequently happens that the opposite sides of a single mountain exhibit at the same time these opposite states of climate.

The great variety of surface and of climate, then, which the Island possesses, is favourable not only to a varied, but to a luxuriant vegetation, especially in the central and southern districts. From the study of plants, taken in connexion with these circumstances and their various other physical conditions, has originated the science of Botanical Geography, one of the most interesting branches of botany, and which will no doubt throw much light on the laws which have regulated the production and dispersion of species. It is only of late years that attention has been given to this subject; for, till the natural productions of different parts of the surface of the globe came to be investigated with the attention and accuracy peculiar to the present age, naturalists rested satisfied with the vague idea that all animals and vegetables had originally radiated from a common centre; and that in the same parallels of latitude the same species would be found. This we now know not to be the case: it may be as safely asserted that every large tract of country has had its own peculiar creation of both plants and animals, as that two and two make four, the exceptions to this general rule being accounted for by disseminating causes now in operation. In no other way can we account for Europe having a totally different class of plants from that part of North America which lies immediately opposite to it; or for the botany of Southern Africa bearing little or no resemblance to that of the same parallels in South America, or to that of Australia; or for many small Islands, such as that of St. Helena, possessing a vegetation totally different even from that of the nearest continent. Islands, however, in general, approach nearest in the nature of their productions to the countries to which they most nearly range in a geographical point of view, and this we shall find to be the case with Ceylon.

Both the climate and the soil of the maritime parts of the western side of Ceylon being very similar to that of the Malabar coast, we find that a large proportion of the plants of both places are identical; and the same holds good with reference to the northern and north-east coasts of Ceylon and the opposite Coromandel coast; although each district in both countries possesses species peculiar to each. A vegetation, more or less similar to that of the coast, extends inland to the foot of the great mountain chain; but from thence upwards, a very great change takes place, and almost every thousand feet of elevation shows a vegetation which, though merging into those immediately above and beneath it, offers species which do not range beyond it. It is at an elevation of from 2,000 to 8,000 feet that the greater part of the species of plants peculiar to Ceylon are to be found; but most of these belong to forms, that is, to natural orders or genera, which form part of the vegetation of neighbouring countries, such as the Neelgherry mountains in the peninsula of India, the Himalaya mountains, the high lands of Malacca, and of the Eastern Islands, but more particularly Java; and I have lately even met with a few species indicating an affinity with the continent of Africa.

I shall now offer some remarks on the nature of the vegetation which characterizes the different botanical regions of the Island. The truly littoral plants of all countries present a greater number of identical species in widely separated localities of the same parallels, than those of any other. This, indeed, is to be expected, from the fact that the ocean forms a ready medium for their transmission from one country to another, by means of tides, winds, and currents, while at the same time their seeds, unlike those of most other plants, are not injured by immersion in salt water. Most of the shrubs which inhabit the muddy shores of the sea, and of the salt lagoons which are so numerous towards the north of the Island, and which are known by the name of Mangroves, belong to that natural order of plants which botanists call *Rhizophoreæ*, a strictly intertropical tribe. My researches have already yielded about half-a-dozen species, all of which I find are common to Ceylon, the shores of the continent of India, and of those of the Eastern Islands; and the same is the case with a few other shrubs belonging to other tribes, such as *Ægiceras fragrans*, which extends even to the shores of Australia, *Epithinia Malayana*, *Pemphis acidula*, *Dilivaria ilicifolia*, *Lumnitzera racemosa*, *Thespesia populnea* (the Tulip-tree of Ceylon), and *Paritium tiliaceum*, the last having a far more extensive geographical range than any of the others, for I possess specimens in my Herbarium from the shores of the West Indies, Brazil, and the Sandwich Islands, besides from various parts of India. The Cocoa-nut tree, which gives so marked a feature to the west coast of Ceylon, and is now so generally cultivated along the shores of all intertropical countries, is essentially a sea-side plant, and has as good claims to be considered indigenous to Ceylon as to any other part of the world. The same observations that apply to the shrubs of our shores, apply also to the herbaceous vegetation.

The great flat tract extending between the sea-shore and the central mountain range, is possessed of a very extensive Flora; but as its general character is stamped by a few species which are very numerous in individuals, it is to them chiefly that my remarks apply. In this tract a very great proportion of the species are identical with those of similar ones on the coasts of Coromandel and Malabar. The generally acid nature of its soil, together with its much drier climate than that of the interior, is well shown, especially in the Northern Province, by the more wiry and stunted nature of the trees and bushes, their prickly stems and branches, and the smaller size of their leaves, together with a much greater proportion of fleshy shrubs, such as *Euphorbias*, &c. The species which preponderate in individuals in the Northern Province, are different kinds of *Acacia*, mostly very thorny, the Wood Apple (*Feronia Elephantum*), *Limonia alata*, *Salvadora Persica* (the true Mustard-tree of Scripture, a tree which extends northward and westward to the Holy Land, and which I was the first to point out as a native of Ceylon), *Carissa spinarum*, *Gmelina Asiatica*, *Pleurostylia Wightii*, *Eugenia bracteata*, *Elæodendron Roxburghii*, *Ochna squarrosa*, *Cassia Fistula*, *Cassia Roxburghii*, and *Memecylon tinctoria*. These are chiefly shrubs and small trees. The large trees, mostly of no great size, are two or three species of *Terminalia*, *Bassia longifolia*, the Margosa (*Azadirachta Indica*), the Satin-wood (*Chloroxylon Swietenia*), the Ceylon Oak (*Schleicheria trijuga*), the Tamarind (*Tamarindus Indica*), and the Palmyra (*Borassus flabelliformis*), which is particularly abundant on the peninsula of Jaffna.* The mass of the herbaceous vegetation belongs to the natural orders *Scrophularineæ*, *Leguminosæ*, *Rubiaceæ*, and *Compositæ*.

Proceeding southwards through this flat country, a considerable difference in the general appearance of the vegetation is observed, arising, no doubt, from the greater amount of rain which falls during the course of the year. The trees are not only larger, but their foliage is heavier and of a darker hue ; and the numerous Acacias, which give so striking a feature to the north, almost disappear. Between Colombo and Galle, shrubs belonging to the natural order *Euphorbiaceæ* are very numerous, both in species and individuals, as well as a variety of *Rabiaceæ*, of which the beautiful *Ixora coccinea* is not the least common. It is only in this range that the Pitcher-plant (*Nepenthes distillatoria*), which is not, however, peculiar to Ceylon, is met with, growing in moist places and supporting itself among the bushes, About Galle, and from thence inland, to the base of Adam's Peak, one of the most common shrubs is that which has been named, in honour of the great Humboldt—*Humboldtia laurifolia* ; and on the low hills near Galle, a few trees are met with, which, farther north, do not exist under one thousand feet of elevation, but this is easily accounted for by the greater atmospheric moisture of that district. One of these trees is a new and remarkable species of Durian (*Durio Ceylanicus, Mihi.*) It is in this district that the greater number of the Sugar plantations of Ceylon exist.

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* Since the above was written, I have made a most important addition to the trees of this region, and, indeed, to the Flora of the Island, in the far-famed Upas tree of Java and the Moluccas (*Antiaris toxicaria*), having discovered some fine large trees of it a few miles to the eastward of Kornegalle, early in August of the present year (1847). This discovery proves how little the investigation of the vegetable productions of Ceylon had been attended to.—(G.G.)

1.
2.

Tab. 4356.

PRIMULA Stuartii.

Stuart's Primrose.

Nat. Ord.—Primulaceæ.—Pentandria Monogynia.

Gen. Char. *Calyx* subcampanulatus vel tubulosus, sæpius angulatus vel inflatus, quinquedentatus vel quinquefidus. *Corolla* hypogyna, infundibuliformis vel hypocraterimorpha, tubo cylindraceo, brevi vel elongato, ad faucem dilatato, limbo quinquefido, laciniis obtusis, emarginatis vel bifidis. *Stamina* quinque, corollæ tubo inserta, ejusdem laciniis opposita, inclusa; *filamenta* brevissima; *antheræ* oblongæ, biloculares, longitudinaliter dehiscentes. *Ovarium* globosum, uniloculare, placenta basilari substipitata. *Ovula* plurima, punctato-rugosa, peltatim amphitropa, dorso plana, ventre convexa. *Capsula* ovata quinquevalvis, valvulis integris aut bifidis apice tantum dehiscentibus. *Semina* minima, numerosa. *Embryo* in axi albuminis carnosi.—Herbæ *in Europa et Asia imprimis alpicolæ, in America boreali raræ,* foliis *plerumque radicalibus,* scapo *simplici,* floribus *umbellatis, involucratis, sæpissime speciosis. Endlicher* et *Duby.*

Primula *Stuartii*; foliis lævibus planis late lanceolatis acutis glaberrimis subtus farina lutea obtectis argute serratis interdum margine revolutis in petiolum late alatum basi dilatatum membranaceum subvaginantem subcoarctatis, scapo crasso glabro foliis longiore sub involucro farinoso, involucri multiflori polyphylli pedicellos subæquantis et illis interdum brevioris foliolis inæqualibus e basi anguste lanceolata acuminato-elongatis obtusiusculis, calycis farinacei campanulato-tubulosi subultra-quinquefidi tubo dimidio brevioris laciniis lanceolatis subacutis, corollæ hypocraterimorphæ lobis obrotundis subcrenulatis vix emarginatis. *Duby.*

Primula Stuartii, *Wall. Fl. Ind. v.* 2. *p.* 20. *Duby in DC. Prodr. v.* 8. *p.* 41.

This beautiful perennial herbaceous Primrose is a native of the mountainous parts of India, having been gathered at Gossain-Than in Nepal, by Wallich, and on the Himalayah, at an elevation of 9,000 feet, by Royle, who speaks of it as giving a rich yellow glow to those regions. The plant, from which the figure was taken, flowered in the garden of the Edinburgh Horticultural Society, under the superintendence of Mr. James M'Nab, during the summer of 1847, having been presented by the late Sheriff Spiers, in whose garden at Granton House it was raised from seeds, sent from India by Major Grant, 9th Lancers, during the spring of 1845. It was planted in a north exposed border, in the summer of 1846, in a mixture of loam and peat. It stood the winter of 1846–47 unprotected, and without any artificial covering except its own decayed leaves. The plant did not produce seed.

DESCR. *Plant* about sixteen inches high. *Leaves* ten or eleven inches long, numerous, radical, erect, smooth, broadly lanceolate, acute, shining above, covered below with a yellowish mealy matter, or farina, (the grains of which are supported on short cellular prolongations), gradually ending in a sheathing petiole which is deeply hollowed on its upper surface ; margins of leaves slightly undulated with close sharp serratures, which occasionally point downwards and are somewhat revolute at the point ; midrib very prominent on the lower side, grooved on the upper, not covered with mealiness. *Vernation* revolute. *Scape* umbellate with numerous flowers, longer than the leaves, covered for about half its length from below the point where the pedicels diverge, with a pale, sulphur-yellow farina, similar to that on the leaves. *Involucre* polyphyllous, leaflets (one of which is at the base of each pedicel) lanceolate, from half to three quarters of an inch long, and shorter than the pedicels which are from one inch to one inch and a quarter in length. *Calyx* gamosepalous, five-cleft, campanulato-tubular, covered with farina, its segments lanceolato-acute. *Corolla* yellow, gamopetalous, salver-shaped, its tube twice as long as the calyx, narrow about the middle, and then expanding in a somewhat campanulate manner near its union with the limb, where there is a marked contraction ; limb of an orange tint towards the centre of the flower, with five grooves at the part where it joins the tube, having five segments, which are rounded, waved, somewhat crenate, covered with minute capitate hairs. *Stamens* five, attached to the corolla, free part of filaments very short, anthers opening longitudinally, introrse ; *pollen* spherical. *Ovary* rounded, oblong, having an appearance of ten teeth at its apex, indicating five bidentate carpels ; *style* round ; *stigma* capitate, obscurely five-lobed with a depression in the centre ; *placenta* free, central, with numerous rows of amphitropal ovules.

W. BALFOUR.

Fig. 1. Section of the tube of the corolla, showing the pistil and stamens. 2. Pistil :—*magnified.* (The drawing as well as the description are kindly communicated by Professor Balfour).

4357.

Fitch, del. et lith.

TAB. 4357.

OROTHAMNUS ZEYHERI.

Mr. Zeyher's Orothamnus.

Nat. Ord. PROTEACEÆ.—TETRANDRIA MONOGYNIA.

Gen. Char. OROTHAMNUS, *Pappe*, MS. *Involucrum universale* membranaceum, polyphyllum, corollatum, calyces et stigmata superans. *Receptaculum commune* planum, paleis filiformibus tectum. *Calyx* corollinus distincte 4-partitus, regularis, laciniis staminiferis basi coalitis. *Stylus* subulato-filiformis, stigmate angustato, cylindraceo, deciduo. *Nux* sessilis ventricosa, immatura tenuissime puberula. *Pappe.*

OROTHAMNUS *Zeyheri.*
OROTHAMNUS Zeyheri. *Pappe, MS.*

We have on several occasions had reason to lament the loss to our collections of many Cape *Proteaceæ*, which were once well known in our gardens:—they seem to have died out and have not been replaced; and we may now express our regret that the present superb species has not yet been introduced alive to our collections. That it will be so ere long, we feel confident; and until that period arrives our subscribers will not be sorry to see a faithful representation, made from a living plant at the Cape, by Mr. Villett, of the present truly beautiful new *Proteacea*, kindly sent to us by Dr. Pappe with the accompanying generic character and description. The plant was discovered lately by Mr. Zeyher in marshy places, on the summit of Hottentot's-Holland mountains, flowering in the month of July. We have tested the accuracy of the figure by a comparison with a specimen communicated at the same time; but we have not had the means of making a full analysis of the flowers. In the system, as Dr. Pappe justly remarks, it will rank next to *Mimetes*.

DESCR. A *shrub*, six to eight feet high, erect, the branches purplish, villous. *Leaves* alternate on the branches, sessile, imbricated, numerous, entire, elliptic, membranaceous, externally convex, within concave, obsoletely veined, pellucido-punctate, glabrous, margined with purple, an inch, or an inch and a half long, the apex with a coloured, callous, reflexed point. *Capitula* one to three or more at the extremity of a branch, drooping, bracteated. *Leaves* of the *involucre* distinct at the base, membranaceous, petaloid, rose-red: the *exterior* larger, oblong-obovate, obtuse, veined, glabrous within, externally and at the margin villous: the *interior* ones smaller, lanceolate, acuminate, very villous. *Bracteas* similar to the leaves, imbricated, oblong-lanceolate, externally glabrous, glossy, externally and at the margins densely villous. *Laciniæ* of the calyx villous, bearded at the points, a little shorter than the style. *Style* deciduous, filiform, glabrous; *stigma* coloured, apiculate. *Pappe.*

Fig. 1. Flower:—*magnified.*

4358.

Fitch del. et lith.

TAB. 4358.

MAMILLARIA CLAVA.

Club-shaped Mamillaria.

Nat. Ord. CACTEÆ.—ICOSANDRIA MONOGYNIA.

Gen. Char. *Calycis tubus* ovario adherens; *lobi* 5–6 colorati fructum juniorem coronantes. *Petala* 5–25 a calyce vix distincta, eo longiora et cum sepalis in tubum concreta. *Stamina* filiformia, pluriserialia. *Stylus* filiformis. *Stigma* 3–7-radiatum. *Bacca* lævis oblonga. *Semina* nidulantia. *Cotyledones* minutæ, acuminatæ.—Suffrutices *carnosi subrotundi, aut cylindracei, lactescentes, aut succo limpido repleti, aphylli, tuberculis subconicis mammæformibus spiraliter dispositis, apice spinulas radiantes et tomentum deciduum gerentibus obtecti.* Flores *inter basin mamillarum sessiles, sæpius in zonam transversam dispositi.* Bacca *obovata, edulis, calyce marcescente, demum deciduo, coronata. Pfeiff.*

MAMILLARIA *Clava*; simplex erecta clavato-columnaris glauco-viridis, axillis tomentosis, mamillis undique insertis maximis elongatis angulato-pyramidatis erecto-patentibus, areolis terminalibus tomentosis, aculeis rectis elongatis corneis radiantibus 8–11–12, centrali 1 longiore robustiore, floribus terminalibus 2–3 majusculis, petalis stramineis apicibus serratis apiculatis exterioribus rubescentibus.

MAMILLARIA Clava. "*Pfeiff. in Otto et Dietr. Allgem. Gartenzing. v.* 8. *p.* 282." *Walp. Repert. Bot. v.* 2. *p.* 259.

A very striking species of *Mamillaria*, remarkable for its columnar rather than clavate form, its very prominent mamillæ and large, glossy, straw-coloured flowers. It was received at the Royal Gardens of Kew under the name here retained, though it does not entirely correspond with the brief character of the plant given by Walpers, of which, moreover, the flowers seem to be unknown to the author. Still I preserve the name; or upon similar grounds, almost every species of the genus might be discarded; so difficult is it in words to define the characters of these strange and curious plants. It flowers in June.

DESCR. Our specimen of this plant is a foot high, columnar, simple, of a glaucous green colour, studded as it were on all sides with large, projecting, and ascending *mamillæ*, of a pyramidal form, with bluntly angled sides, densely downy with white wool in the axils: the *areolæ* terminal or subterminal, woolly, and bearing besides from eight to eleven straight,

spreading, long, rigid *spines*, of a pale brown colour, and a single longer and stronger central one. From the extremity of this plant the *flowers* appear, two or three, large, handsome, showy: the base is occupied by green, imbricated scales, tipped with red, considered the calyx, and then gradually pass into the copious, spreading, straw-coloured, glossy, linear-oblong, or subspathulate *petals*, serrated and mucronated at the apex; of which the more exterior, however, are entire and tinged with dull red. *Stamens* numerous, orange colour. *Style* rather longer than the stamens: rays of the *stigma* six, yellow.

W. del et lith.

Tab. 4359.

ACHIMENES ocellata.

Eyeletted Achimenes.

Nat. Ord. Gesneriaceæ.—Didynamia Angiospermia.

Gen. Char. (*Vide supra,* Tab. 4312.)

Achimenes *ocellata*; elata erecta subsimplex, caule superne pubescenti-scabra, foliis sublonge petiolatis ovatis acuminatis grosse serratis rugosis asperis subtus coloratis, pedunculis axillaribus solitariis folio multo brevioribus infra medium bibracteatis, floribus nutantibus, calycis tubo ovario omnino adnato, corollæ tubo campanulato, lobis rotundatis subæqualibus patentibus ocellatis, glandulis epigynis 5 æqualibus basi unitis.

Roots of this beautiful new *Achimenes* were sent from the Isthmus of Panama, by the Government Collector and Naturalist of H.M.S. Herald, Mr. Seemann; and they produced their bright coloured flowers in the winter of 1847–8, in the stove of the Royal Gardens. In the early spring, however, let it be remarked, after our plate was finished, the blossoms became much more brilliant, of a deep vermillion, but with less of the white round the black dots; so that the name was less characteristic. It promises to be a great ornament to our collections, and will, in the summer, we cannot doubt, flourish best in a cool greenhouse. The leaves, too, are handsome, and of a very full green colour, purple below; and a deeper purple is on the stems and petioles.

Descr. *Roots* small, tuberous, by which it is readily increased. *Stems* erect, one or two feet high, subterete, deep purple, above pubescenti-scabrous, the hairs appressed. *Leaves* opposite, large, ovate, acuminate, copiously reticulated with veins and wrinkled, the under-side purple, the margin coarsely serrated; the upper-side dark shining green, scabrous. *Petioles* an inch or more long, rather thick, purple. *Peduncles* red, erect, slender, much shorter than the leaves, about as long as the internodes, having a pair of small, frequently unequal, green bracteas at the base. *Calyx* hairy; *tube* turbinate, red, adherent with the ovary; *laciniæ* broadly subulate, green, spreading. *Corolla* drooping, bright red, pubescent; the tube campanulate, the limb of five nearly equal, rounded, entire, spreading segments, rather copiously marked with white * spots, bearing a black dot in the centre (whence the specific name). *Stamens* a little longer than the tube. *Anthers* white, slightly cohering in two pairs: the rudiment of a fifth stamen is present. *Style* shorter than the stamens, thick, downy, with five nearly equal *glands* at the base, united into a ring. *Stigma* somewhat oblique, bifid.

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* The white of these spots, at a more advanced season, was almost obsolete.

Fig 1. Pistil. 2. Corolla, laid open:—*magnified*.

1.

TAB. 4360.

SIDA (ABUTILON) INTEGERRIMA.

Entire-leaved Sida.

Nat. Ord. MALVACEÆ.—MONODELPHIA POLYANDRIA.

Gen. Char. (*Vide supra*, TAB. 4227.)

SIDA *integerrima*; subarborea, foliis orbiculari-cordatis breviter acuminatis supra glabris subtus stellato-pubescentibus subtomentosis 5–7-nerviis omnino integerrimis longe petiolatis, stipulis lineari-subulatis deciduis, pedunculis in axillis supremis foliorum solitariis unifloris petiolo longioribus infra apicem articulatis, calyce stellato-tomentoso hemisphærico 5-lobo subquinquangulato lobis triangulari-acuminatis erectis rigidis, corollæ speciosæ petalis oblique obovato-cuneatis retusis flavis basi macula aurantiaca, ovario globoso, styli ramis 11.

MALVACEA. *Funcke, Herb. Nov. Grenad. n.* 753. *Linden, ejusd. n.* 1508.

An old inhabitant of the stove of the Royal Gardens, but of whose history nothing has been preserved: by specimens, however, in my Herbarium, from Funcke and Linden, I learn that it is unquestionably a native of New Grenada. Its nearest affinity is perhaps *Sida graveolens* (Bot. Mag. t. 4134), from which it is abundantly distinguished by its larger size, perfectly entire leaves, different vestiture, differently formed calyx, much greater spread of the flowers, and by the well-defined deep orange spots quite confined to the base of the petals. It flowers in May, and is really one of the handsomest species of the genus.

DESCR. The *plant*, in our stove, forms a small tree, fourteen to sixteen feet high, much branched above: the young branches are stellate-pubescent, almost tomentose. *Leaves* large, on long *footstalks*, a little swollen at their base, orbicular-cordate, shortly acuminate, five to seven-nerved, quite entire at the margin, firm in texture, glabrous above, except in the young foliage, almost stellato-tomentose beneath. *Stipules* linear-subulate, soon turning brown and deciduous. *Peduncles* confined to the axils of the superior leaves, longer than the petioles, solitary, single-flowered, a little dilated upwards and articulated below the apex. *Calyx* hemispherical, tomentose, rather lax, obtuse at the base, five-

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4361.

TAB. 4361.

ARISTOLOCHIA ANGUICIDA.

Snake-Aristolochia, or *Birthwort.*

Nat. Ord. ARISTOLOCHIACEÆ.—GYNANDRIA HEXANDRIA.

Gen. Char. (*Vide supra,* TAB. 4221.)

ARISTOLOCHIA *anguicida*; caule volubili striato, foliis brevi-petiolatis cordato-acuminatis basi sinu profundo angusto, stipulis cordato-rotundatis amplexicaulibus, pedunculis axillaribus solitariis unifloris flore longioribus, perianthii tubo basi inflato globoso reliquo infundibuliformi ore dilatato obliquo, labio deflexo e basi dilatata lineari-attenuato tubo sublongiore.

ARISTOLOCHIA anguicida. *Jacq. Amœn. p.* 232. *t.* 144. *Linn. Sp. Pl. p.* 1362. *H.B.K. Nov. Gen. Am. v.* 2. *p.* 166. *Spreng. Syst. Veget. v.* 3. *p.* 751.

A singular and very little known species of *Birthwort,* native of New Grenada. Jacquin discovered it at Carthagena. Our Collector, Mr. Purdie, sent it to the Royal Gardens of Kew, where it first flowered in December, 1845. As the natives of North America employ the *A. serpentaria* (which M. Bosc says is one of the most active sudorifics known) for destroying serpents, and also for curing persons bitten by those reptiles, so the natives of South America (New Grenada) employ this for similar purposes. "The juice of the root," according to Jacquin, "mixed with the saliva by mastication, renders powerless a serpent of moderate size, if one or two drops are put into the mouth of the creature, when it may be handled for several hours and put into the bosom with impunity; but after a time the animal recovers: a larger quantity, however, occasions its death." Jacquin attributes to the odour of the root the faculty of driving away serpents when they approach this plant; and he also relates that the juice, applied to the recent bite of a serpent, or taken internally, infallibly cures the patient.

DESCR. *Stems* long, slender, twining, striated. *Leaves* distant, on rather long, slender *petioles,* two to four inches long, cordato-acuminate, with a deep sinus at the base, entire. *Stipules* large, between cordate and rotundate, amplexicaul. *Peduncles* axillary, solitary, almost as long as the leaf, bearing a single flower, in shape not much unlike our European *A. Clematitis,* but in colour very different. The base of the perianth is inflated, globose, almost white, the rest of the tube is infundibuliform, narrow below, white, spotted and reticulated with brown, the mouth dilated, oblique; the lip deflexed, longer than the tube, from a broad base gradually tapering to a blunt point, dashed and transversely streaked with rich brown.

Fig. 1. Column of Stamen and stigma :—*magnified.*

4362.

Fitch del et lith

Reeve Benham & Reeve, imp

TAB. 4362.

CUPHEA SILENOIDES.

Catchfly Cuphea.

Nat. Ord. LYTHRARIEÆ.—DODECANDRIA MONOGYNIA.

Gen. Char. (*Vide supra*, TAB. 4208.)

CUPHEA *silenoides*; caule ramoso adscendente una cum calycibus setis patentibus fuscis hispido glutinosoque, foliis oppositis oblongo-lanceolatis obtusis basi acutis hirtis supra viscosissimis, floribus ad axillas in ramulo brevi subspicatis secundis, calyce tubuloso elongato, petalis rotundatis stipitatis binis duplomajoribus, capsula octosperma. *Nees.*

CUPHEA silenoides. *Nees in Linnæa, v.* 10. *Literbl. p.* 71. *Walp. Repert. Bot. v.* 2. *p.* 107.

A rather showy, hardy annual; if one may use the expression of showy for a copiously flowering plant, whose blossoms are conspicuous but not brilliant; much more conspicuous, indeed, than that species of *Silene*, from which its specific name may be supposed to be derived, *S. quinquevulnera*. It was introduced some years ago to the Botanic Garden of Breslau, from Mexico, by Dr. Nees Von Esenbeck, through Mr. De Berghes, and has since become common in our gardens. It is well suited for a flower border, and an entire bed filled with it has a very pretty effect. The seeds are best raised in a hot-bed.

DESCR. A much branching *plant*, about a foot high, in almost every part clothed with spreading hairs (most copious on the calyces), tipped with a viscid gland. *Leaves* opposite, lanceolate, entire, obtuse, scarcely an inch long. *Peduncles* short, solitary, single-flowered, from the axils of the upper leaves, and there forming a leafy raceme, each with two reflexed bracteas. *Calyx-tube* red, elongated, cylindrical, furrowed, the mouth very hairy, with a blunt spur-like projection at the base above; the *limb* of six spreading segments, of which five are short and acute, the sixth (superior one) elongated and bifid: in the sinuses of the six segments is a small scale, with spreading, stellated, viscid hairs. *Petals* five, spreading, rotundate, stipitate; four (lower ones) smaller, deep blood-purple colour: two upper ones much

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larger, of the same colour, but pale at the margin. *Stamen* reaching to the mouth of the tube of the calyx. *Ovary* on a globose gland. *Style* subulate, included.

Fig. 1. Flower from which the petals are removed. 2. Calyx laid open:—*magnified.*

The east side of the Island being much drier than the west, its vegetation has more the character of that of the Northern province than of the opposite coast It must, however, be remarked that, with the exception of the immediate neighbourhood of Trincomalee and of Batticaloa, the eastern side of the Island is a *terra incognita* to the Botanist.

Generally speaking, the first two thousand feet of the mountain range are covered with a dense forest of large trees, characterized by foliage of a much larger size than the low-country forests, and nearly of a uniform dark green colour; except, indeed, when the large Iron-wood tree (*Mesua Ceylanica*) is putting forth its young leaves, which are blood red, and at that season give a remarkable aspect to the scene. To the general observer the trees of the next two thousand feet appear little different from those of the first; but the eye of the Botanist can at once detect many species peculiar to each. The mass of the herbaceous vegetation of both is made up of *Ferns*, *Scitamineæ*, *Urticaceæ*, *Cyrtandreæ* and *Compositæ*. One of the most marked features of the second two thousand feet is the existence of large open grassy tracts on the sides of the hills, to which the natives give the name of Pattanas. Such tracts extend to the highest parts of the island, differing more or less at different elevations in the nature of their vegetation. Scattered through the lower ones, and giving them an orchard-like appearance, are two trees almost peculiar to them. They are the *Careya arborea*, and *Emblica officinalis*. The herbaceous vegetation consists chiefly of numerous tall coarse grasses, growing chiefly in tufts; the most common is the Lemon-Grass (*Andropogon schoenanthus*), intermingled with several *Compositæ*, principally consisting of several species of *Blumea*, *Knoxia corymbosa*, the representative of the old and accurate historian of Ceylon, the broom-like *Atylosia Candollii*, and *Impatiens Balsamina*, the origin of the common garden balsam. On the forest land of this tract the principal Coffee estates have been established.

The next two thousand feet, which bring us to an elevation of 6,000 feet above the level of the sea, and into a region which has a much lower temperature than any of the preceding, is still covered with forest having occasional patches of Pattana, but both give support to a very different vegetation. The trees are much smaller, closer together, and have their stems and branches covered with pendulous masses of lichens and mosses, and many kinds of small *Orchideæ*. Their leaves are mostly small; and their varied tints remind one of the autumnal forests of more temperate climes. The under vegetation consists of numerous beautiful herbaceous and suffruticose Balsams (*Impatiens*), a great variety of suffruticose *Acanthaceæ* (Nilu), lovely and delicate Ferns of all sizes, from those scarcely a few inches in height to tree ones which throw up their stems surmounted by large masses of verdant fronds to an elevation often of twenty feet, and rivalling in gracefulness the Palms of the low country. In this range the lovely Tree-Rhododendron, so common in more elevated tracts, first makes its appearance. The Pattanas at this elevation are more spongy in their nature than those below: the grasses peculiar to them grow closer together, and are smaller and more wiry in their texture; while the scattered shrubs are principally species of *Hedyotis*, and *Osbeckia*, the latter producing beautiful large rose-coloured flowers.

The two thousand feet which succeed to these include the most elevated portions of the island, and embrace chiefly the mountain-tops, and the vallies or plains which divide them. The vegetation of this region has a still more alpine aspect, and is that which is possessed of the greatest interest to the Botanist, from the great number of European forms mixed up with those whose range does not extend beyond the tropics. The tree that first claims our attention in this range is the *Rhododendron*, not only from its great beauty, but from its vast abundance; especially in the open plains, which during the months of June and July are clouded with red from the great profusion of its blossoms. I have met with two well-marked varieties, if they are not, indeed, distinct species, of this tree. One is principally seen in the plains, or in their wooded margins, and is easily recognized by the rusty-coloured under-side of its leaves. It is the variety common on the open plains of the Neilgherry range of mountains, in the peninsula of India. The other variety, so far as I am aware, is peculiar to Ceylon, and always found in the forest, and at a greater elevation than the other. It is distinguished by its greater size, and the silvery underside of its leaves, which are besides narrow and rounded at the base, not broad and cordate. Several fine trees of this variety occur on the ascent of Pedrotalagalla from Nuwera-Ellia, and close to the temple on the summit of Adam's Peak; but the finest I have met with in my excursions among the mountains of the interior, were in crossing over Totapella, where there is a large forest of them, many being from 50 to 70 feet in height, and with stems more than three feet in diameter. In these forests are also to be met with some four or five species of *Michelia*, the representatives of the Magnolias of North America, several arbo-

4363.

TAB. 4363.

GOLDFUSSIA ISOPHYLLA.

Equal-leaved Goldfussia.

Nat. Ord. ACANTHACEÆ.—DIDYNAMIA ANGIOSPERMIA.

Gen. Char. Cal. 5-partitus, subæqualis. *Cor.* infundibuliformis, limbo quinquefido obtuso æquali. *Stamina* inclusa, didynama, humiliora sæpe brevissima reflexa. *Antheræ* nutantes; loculi in connectivo uncinato glanduloso obliqui, ovati, membranacei. *Stigma* simplex, subulatum, altero latere crenatum, irritabile. *Capsula* sexangularis, bivalvis, a dissepimento facile solubilis, loculis infernis dispermis. *Semina* discoidea, retinaculis subtensa.—Frutices *Indiæ orientalis, foliis serratis penninervibus curvinervibus, nervis omnibus apicem patentibus, nec vero attingentibus.* Flores *pauci in capitulo bibracteolati, bracteis deciduis, rarius spicati; spica post delapsas bracteas magis elongata.* Capitula *pedunculata, pedunculo simplici v. diviso. Nees.*

GOLDFUSSIA *isophylla*; foliis lanceolatis æqualibus remote serrulatis septuplinerviis. *Nees.*

GOLDFUSSIA isophylla. *Nees in Wall. Pl. As. Rar. v.* 3. *p.* 88; *in De Cand. Prodr, v.* 11. *p.* 176.

RUELLIA, *Wall. Cat, n.* 7162.

A species in many respects allied to the well-known *Goldfussia anisophylla* (Bot. Mag. t. 3404), but at once distinguished, as the name implies, by the pairs of leaves being alike; whereas in the last mentioned species there is a singular disparity, for, while one of each pair is larger and broader than any of *G. isophylla,* the other and opposite one is reduced to a subulate scale. The flowers here, too, though rather smaller, are more copious, and the plant being bushy, its numerous blue flowers render it a most desirable inmate of a stove during winter, the season of blossoming. It is a native of the East Indies, and was introduced by Dr. Wallich.

DESCR. A low bushy *shrub,* two or three feet high, copiously branched and spreading: *branches* acutely tetragonal, slightly swollen at the joints. *Leaves* opposite, glabrous, on short *petioles,* spreading, narrow-lanceolate, acuminate, remotely denticulato-serrate, with about six principal, lateral, oblique nerves, besides the costa, which, I presume, is what Nees von Esenbeck intends to imply by the term "septuplinervia." *Peduncles* much shorter than the leaves, axillary, solitary, leafy or naked, generally bearing about three *flowers*, sessile at their apex. *Corolla* more or less nutant, thin, with many plicæ, variegated blue and white, funnel-shaped, curved, the lower part of the *tube* contracted: *mouth* oblique, of five nearly equal, rounded, emarginate *lobes*. *Stamens* included, hairy, lower ones very short: *Anthers* drooping, rounded. *Ovary* oblong, seated on a cup-shaped gland. *Style* subulate, hairy.

Fig. 1. Stamens, as seen within the corolla. 2. One of the lower stamens. 3. Pistil:—*magnified.*

1.

TAB. 4364.

SMEATHMANNIA PUBESCENS.

Downy Smeathmannia.

Nat. Ord. PASSIFLOREÆ.—POLYANDRIA PENTAGYNIA.

Gen. Char. (*Vide supra*, TAB. 4194.)

SMEATHMANNIA *pubescens*; ramis junioribus petiolis (basi glandulosis) costa subtus pedunculis calycibusque ferrugineo-sericeis, foliis oblongis sinuato-dentatis basi obtusis, sepalis petalisque acutis, urceolo barbato.

SMEATHMANNIA pubescens. *Br. in Linn. Trans. v.* 13. *p.* 221 *(in note)*. *De Cand. Prodr. v.* 3. *p.* 322.

BULOWIA insignis? *Thonn. in Pl. Guin. v.* 2. *p.* 21.

At Tab. 4194 we represented the rare *Smeathmannia lævigata* and now we have the satisfaction of figuring and describing the equally scarce *S. pubescens*, Br., a native of the same country, viz., Sierra Leone, and imported by the same nobleman, Lord Derby, through the same medium, Mr. Whitfield. It flowered, probably for the first time in Europe, in the stove in the Royal Gardens of Kew, in February, 1848. It is a more showy species than *S. lævigata*, having larger leaves and larger blossoms, the latter equally destitute of fragrance.

DESCR. A tall *shrub*: *branches* terete, the younger ones, as well as the *petioles*, *costa* of the *leaves* beneath, *peduncles* and exterior *sepals*, clothed with silky ferruginous hairs. *Leaves* alternate, shortly petioled, oblong, coriaceous, glossy, acute, penninerved, sinuato-dentate, obtuse at the base. *Petioles* scarcely two lines long, thick, with from two to four pedicellated *glands* on each side of the base, shining, dark green, and very conspicuous. *Peduncles* axillary, solitary, short, single-flowered. *Flowers* large, white. *Perianth* of ten pieces or sepals, in two rows, the outer of which might be considered the calyx, but that they gradually pass into petals, the exterior *sepal* green, three-ribbed and hairy, the rest gradually more petaloid; the inner white, all of them acute and spreading. *Urceolus* cup-shaped, beautifully fringed at the mouth. *Ovary* ovato-globose, hairy. *Stamens* about twenty, longer than the ovary, but shorter than the five filiform *styles*, which, each, terminate in a globose, peltate, downy *stigma*.

Fig. 1. Urceolus, stamen, and pistil:—*magnified*.

4365.

Fitch del et lith

TAB. 4365.

LOPIMIA MALACOPHYLLA.

Soft-leaved Lopimia.

Nat. Ord. MALVACEÆ.—MONADELPHIA POLYANDRIA.

Gen. Char. LOPIMIA, *Mart.* *Involucellum* calyciforme, ovatum, subventricosum, primum (in aspectu) monophyllum, striatum, apice irregulariter 3–5-fidum, demum polyphyllum, ore contracto, corollæ basin amplexante, calycem multoties superans: foliolis 16–20, setaceis, liberis, approximatis, subconniventibus. *Calyx* minutus, 5-dentatus, membranaceus. *Petala* cuneato-spathulata, obliqua, limbo horizontaliter patente. *Columna staminea* elongata, cylindracea. *Antheræ* 30–40, duplici serie insertæ. *Stigmata* 10. *Capsula* pentacocca, "coccis clausis mucilagine visciduIo illinitis."

LOPIMIA *malacophylla.*

LOPIMIA malacophylla. *Mart. in Nov. Act. Bonn. v.* 11. *p.* 96. *De Cand. Prodr. v.* 1. *p.* 458.

SIDA malacophylla. *Link et Otto, Ic. Hort. Berol. t.* 30.

PAVONIA velutina. *St. Hil. Fl. Bras. Merid. v.* 1. *p.* 233.

Sent from New Grenada by Mr. Purdie, to the Royal Gardens of Kew, where it flowers freely during the winter and spring months, and is far from being unornamental. There is a peculiar aspect in this plant among the *Malvaceæ,* which seems to confirm the correctness of Martius's views in making of it a new genus; although St. Hilaire, in his valuable 'Flora Brasiliæ meridionalis,' refers it, and perhaps with justice, to *Pavonia.* A casual inspection, indeed, would lead us to take the involucre of the flower for a calyx, as Link and Otto have done, and then we appear to have the characters of *Sida.* But a more careful investigation shows that the supposed calyx is a true involucre of many setaceous leaflets, which for a time cohere, apparently in consequence of the copious hairs, and afterwards become distinct; and within it will be seen the minute cup-shaped calyx, so small, indeed, that but for its situation, external with regard to the corolla, it might be taken for a hypogynous gland.

DESCR. A *shrub,* three to five feet high in our stove, with rounded, downy, herbaceous *branches.* *Leaves* rather ample,

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cordate, acute, petiolate, crenato-dentate, very soft and downy on both sides. *Stipules* subulate, green, deciduous. *Peduncles* axillary, solitary or two or three together, shorter than the leaves, bracteated at the base, erect. *Involucre*, at first exactly resembling a calyx, ovate, somewhat inflated, densely hairy or tomentose, striated, the mouth contracted, embracing the lower part of the corolla, unequally three to five-toothed, eventually separating into fifteen or twenty subulate *leaflets*. *Calyx* exceedingly minute, cup-shaped, membranaceous, five-toothed, hairy. *Petals* five, long, cuneato-spathulate, oblique, rose-red, streaked with white in their lower half: the *limb* patent. *Staminal tube* as long as the petals, striated. *Anthers* several, in two rows. *Style* filiform, the length of the stamens; *stigmas* ten. *Ovary* of five lobes.

Fig. 1. Calyx and pistil. 2. Calyx laid open:—*magnified.*

4366

W. Fitch del. et lith.

Reeve, Benham & Reeve, imp.

TAB. 4366.

STROBILANTHES LACTATUS.

Milky-leaved Strobilanthes.

Nat. Ord. ACANTHACEÆ.—DIDYNAMIA ANGIOSPERMIA.

Gen. Char. Cal. subæqualis, ad basin 5-partitus, laciniis herbaceis linearibus. *Cor.* infundibuliformis, tubo in limbum campanulatum non abrupte transeunte, *laciniæ* æquales v. subæquales, limbo raro subbilabiato, rotundatæ v. emarginatæ. *Stam.* 4, didynama, faucium medio inserta, plerumque non prominentia. *Filamenta* omnia in quibusdam basi membrana conjuncta, monadelpha; in una specie (*S. decurrente*) accedit rudimentum filamenti quinti. *Antheræ* oblongæ, muticæ, loculis parallelis contiguis æqualibus in quibusdam basi divergentibus, connectivo latiore unde anthera sagittata. *Stigma* subulatum, incurvum v. involutum, dorso spongiolosum, canaliculatum. *Capsula* columnaris, tetragona, fere ad basin bilocularis, in medio tetrasperma. *Dissepimentum* tenue, sursum incompletum, adnatum, a valvulis quandoque solubile. *Semina* discoidea, angulata, in ambitu utrinque areolata, angulo juxta hilum magis prominulo, retinaculis uncinatis suffulta.—Frutices *et* Herbæ *Indiæ Orientalis.* Spicæ *magis minusve densæ, axillares terminalesque, erectæ, cernuæ v. nutantes.* Bracteæ *foliaceæ v. foliaceo-membranaceæ, persistentes v. caducæ floresque denudantes.* Bracteolæ *parvæ, quandoque nullæ.* Flores *e majoribus teneri, cærulei v. albi. Decsne.*

STROBILANTHES *lactatus*; suffruticosus, ramis obtuse tetragonis subteretibus, foliis ovatis acuminatis basi acutis breviter petiolatis integerrimis glabris medio per totam suam longitudinem albicantibus, pedunculis solitariis axillaribus vel terminalibus subbifloris bibracteatis, bracteis foliaceis, corollæ pallide purpureo-albæ limbo plicato, filamentis liberis.

RUELLIA grandis. *Hortulan.*

Received from the Nursery of Mr. Low, of Clapton, under the name of *Ruellia grandis*, which seems to be no-where published, and by no means characteristic of the plant. It is in all probability a native of the East Indies, and has the merit of enlivening the stove with its pretty pale purplish-white blossoms, during the dead months of winter. It does not appear to be a species taken up by the learned Nees von Esenbeck. Its flowers, individually, a good deal resemble those of *S. Sabinianus* (Bot. Mag. t.3517); but the inflorescence is totally different; and the leaves are prettily variegated with white down the centre, looking as if milk had been accidentally spilled upon them.

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Descr. Our *plant* scarcely equals a foot in height, branched; the *branches* herbaceous, very obtusely four-angled. *Leaves* shortly petiolate, glabrous, ovate, acuminate, acute at the base, entire or slightly sinuated, purplish beneath, dark green above, with a broad white or milky line down the centre. *Peduncles* about two-flowered, each flower has a pair of leafy *bracteas*. *Corolla* with the tube funnel-shaped, contracted at the base. *Limb* of five nearly equal, spreading, obtuse segments. *Stamens* included. *Filaments* free. *Anthers* linear-oblong. *Style* filiform. *Stigma* oblique, subulate.

Fig. 1. Pistil. 2. Stamens:—*magnified.*

4367.

Fitch. del et lith.

Reeve, Benham & Reeve imp.

TAB. 4367.

OXYPETALUM SOLANOIDES.

Solanum-like Oxypetalum.

Nat. Ord. ASCLEPIADEÆ.—PENTANDRIA DIGYNIA.

Gen. Char. Cal. 5-partitus, sepalis lanceolatis acutis. *Corolla* tubo campanulato brevi; limbo 5-fido v. 5-partito, laciniis lanceolatis v. ligulatis patulis v. reflexis, præfloratione dextrorsum torta. *Corona staminea* 5-phylla, foliolis tubo adnatis retusis marginatis v. bifidis, introrsum nudis v. denticulo v. callo auctis. *Antheræ* membrana terminatæ. *Massæ pollinis* oblongæ v. obovatæ v. raro basi attenuatæ, processubus geniculatis appendicula dentiformi arrecta nigra auctis. *Stigmatis corpusculum* lineare, planiusculum. *Stigma* acuminatum, acumine elongato bipartito, ramis sæpius divaricatis. *Folliculi* læves v. spinis innocuis contortis onusti. *Semina* comosa.—Suffrutices *Americæ tropicæ, Brasilienses, v. Chilenses, volubiles, v.* herbæ *erectæ,* foliis *oppositis sæpius pubescentibus,* pedunculis *interpetiolaribus brevibus paucifloris, floribus majusculis interdum suaveolentibus, azureis, albis, ochroleucis v. virentibus. Dcsne.*

OXYPETALUM *solanoides*; caule subsimplici erecto pubescente, foliis lanceolatis v. oblongo-cordatis mucronatis acutis utrinque tomentosis petiolatis, pedunculis terminalibus v. extra-axillaribus corymboso-paniculatis plurifloris, corollæ laciniis ovato-acuminatis patentibus, coronæ stam. foliolis longe exsertis apice alte bifidis laciniis linearibus obtusis divaricato-lyratis, anther. membranis obtusis, stigmate longiusculo bifido, "folliculis lineari-oblongis incano-tomentosis." *Dcsne.*

OXYPETALUM solanoides. *Hook. et Arn. Bot. of Beechey's Voy. p.* 289. *Decaisne in De Cand. Prodr. v.* 8. *p.* 586.

SCHIZOSTEMMA longifolium. *Decaisne, Etud. Asclep. in Ann. Sc. Nat.* 1838. p. 344.

A pretty greenhouse plant, native of Rio de la Plata and South Brazil, with much the habit of *O. cæruleum,* Dcsne. (*Tweediea versicolor,* Bot. Mag. t. 3630); but the flowers are not quite so large, nor are they of that bright tint which gives the charm to that favourite shrub. The present species blossoms during the summer months.

DESCR. A *shrub* or *under-shrub,* with slightly branched *stems,* weak, and with somewhat of a climbing character, everywhere clothed with a close, villous tomentum. *Leaves* oblong-cordate, mucronate, with a deep sinus between the lobes at the base, about equal in length to the petiole; the upper ones gradually

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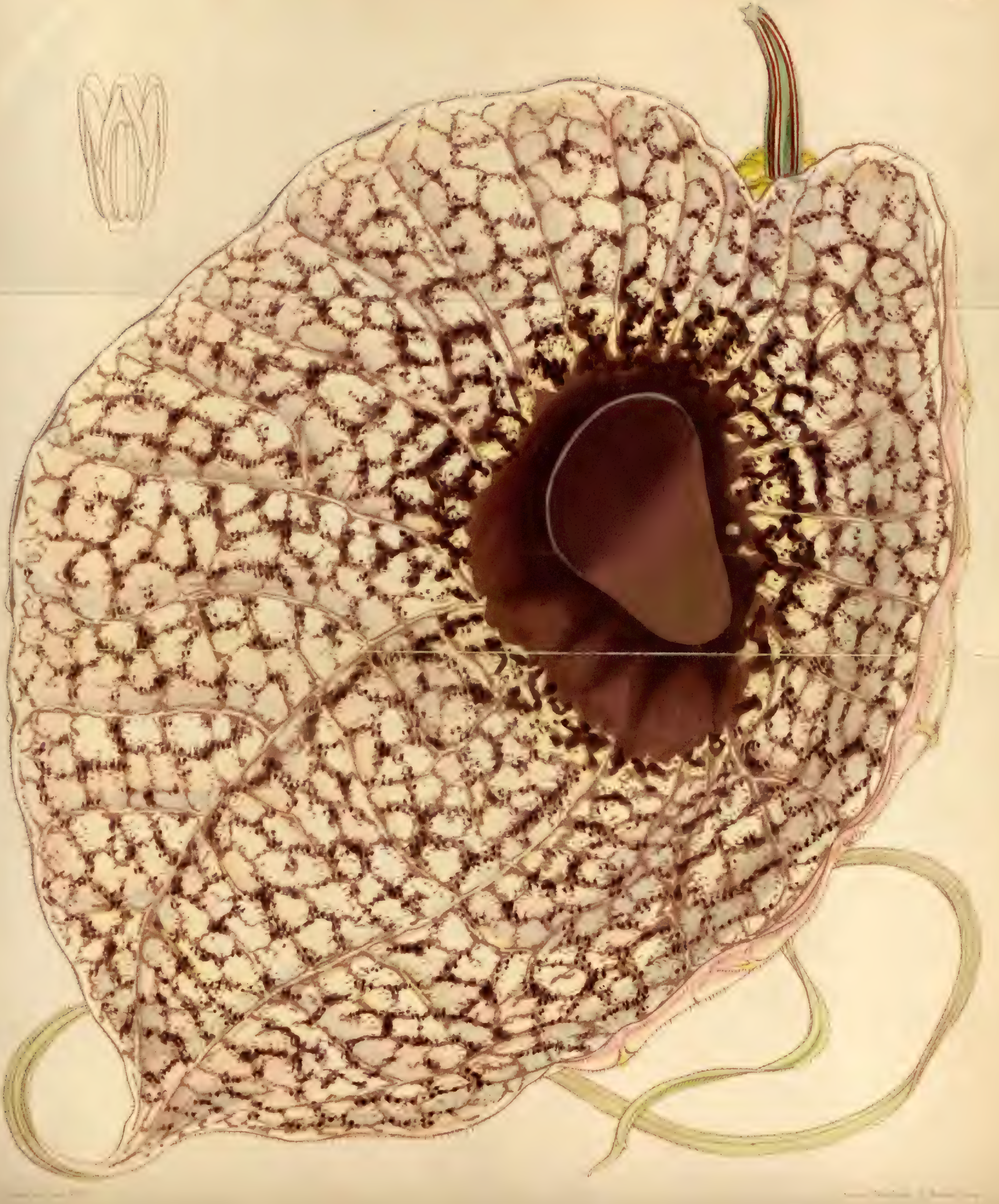
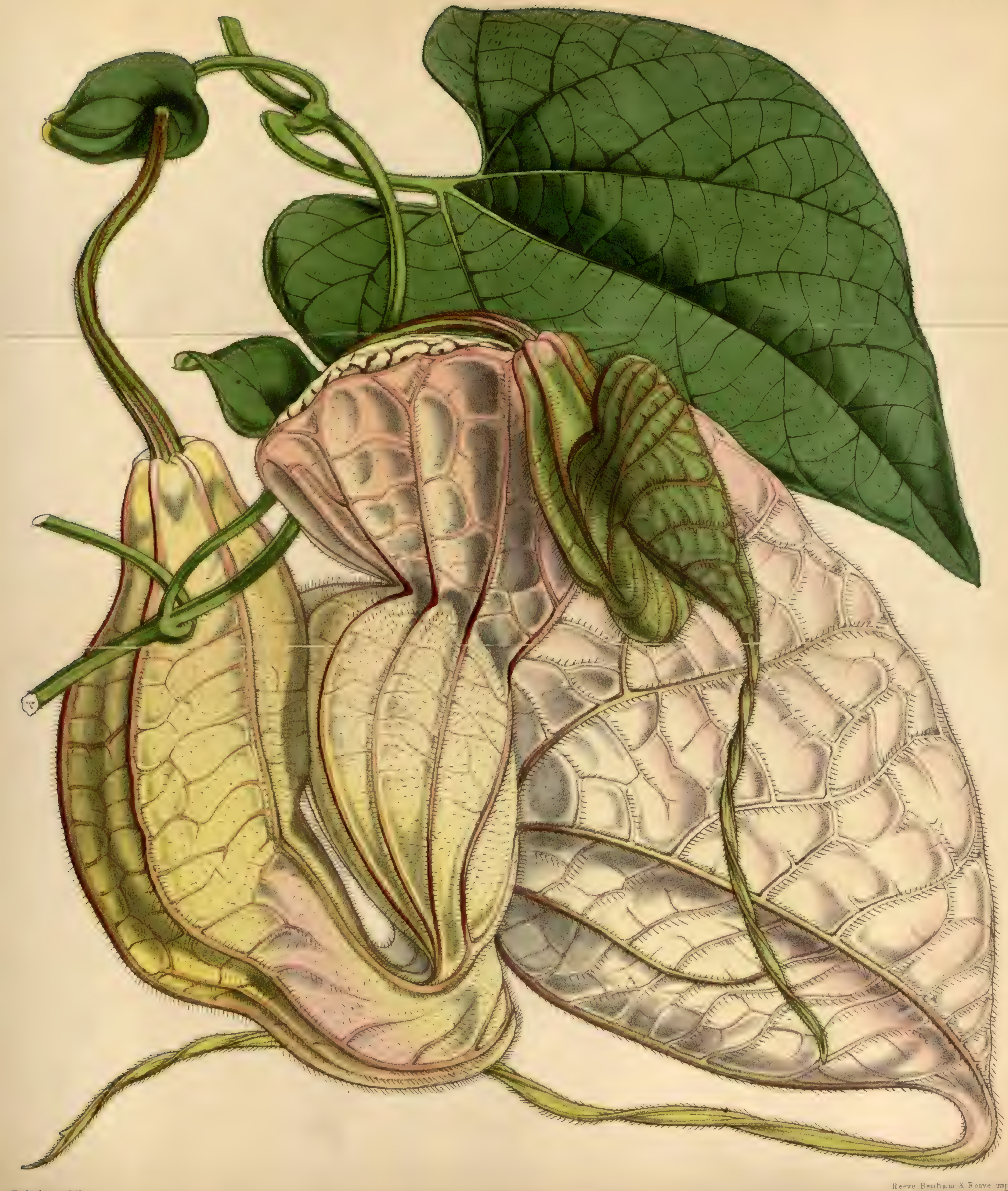
smaller and narrower, till the uppermost resemble lanceolate bracts. *Flowers* in pedunculated, few-flowered *corymbs,* longer than the leaves, and forming, in fact, an elongated, leafy panicle. *Pedicels* with minute subulate *bracts* at the base. *Calyx* five-partite, with the segments subulato-lanceolate, half the length of the corolla, erect. *Corolla* of a dull purplish red colour, campanulate, but cut down almost to the base into five oblong-lanceolate, acute, erecto-patent lobes. *Staminal crown* of five, ligulate, fleshy *leaflets,* not half the length of the corolla, emarginate and lengthened out on each side just below the apex into two awl-shaped processes, curved outwardly at the extremity: thus each leaflet is narrow-lyrate. *Anthers* with a terminal, ovate lobe, shorter than the ovary in our specimens. *Style* elongated. *Stigma* bifid.

Fig. 1. Section of a flower, from which the calyx is removed. 2. Anther-case. 3. Pollen-masses. 4. More advanced ovary: *magnified.*



4369.



Fitch, del et lith

Reeve Benham & Reeve imp

TAB. 4368, 4369.

ARISTOLOCHIA GRANDIFLORA.

Pelican-flower, or *Poison Hog-meat.*

Nat. Ord. ARISTOLOCHIEÆ.—GYNANDRIA HEXANDRIA.
Gen. Char. (*Vide supra*, TAB. 4361.)

ARISTOLOCHIA *grandiflora*; volubilis, foliis pubescentibus cordatis subacuminatis, pedunculo solitario bracteato, perianthii maximi cordati extus costati reticulati pubescentis tubo inflato refracto medio contracto, limbo amplissimo cordato-ovato longissime caudato.

ARISTOLOCHIA grandiflora. *Sw. Fl. Ind. Occ. v.* 3. *p.* 1566 *(non Vahl). Spreng. Syst. Veg. v.* 3. *p.* 752.

ARISTOLOCHIA Gigas. *Lindl. Bot. Reg.* 1842. t. 60.

ARISTOLOCHIA cordiflora. *Mutis, MS. in H.B.K. Nov. Gen. Am. v.* 2. *p.* 118. *ed. fol.* (*sine descr.*)

ARISTOLOCHIA scandens, *&c. Br. Jamaic. p.* 329.

It is impossible to do justice to the present subject in its representation without devoting two quarto plates to it:—for, of all known flowers, this, if we measure in length, especially from the base to the apex, is the largest, next to the gigantic *Rafflesia*; it is like that, too, in the mottling and general tone of colour, and, what we could willingly dispense with, its disgusting odour. Still it amply deserves a place in our stoves; for a large, healthy, well-trained specimen, with its singular blossoms, as remarkable before, as after, expansion, presents one of the most striking objects of any vegetable we are acquainted with, and the detestable scent is happily not widely diffused. Our plant was raised from seeds sent from Jamaica by Mr. Purdie. It was in that island first detected by Patrick Browne, who speaks of it as "the large climbing Birth-wort, with variegated flowers, or the Poison Hog-meat," and it is there further known, as we learn from Lunan, by the appropriate name of *Pelican-flower*. A glance at a young bud (at tab. 4369) explains the reason of that appellation. But this species of *Aristolochia* is by no means confined to Jamaica; and although, from the difficulty of drying specimens, it is rarely seen in our herbaria, there is reason to believe it is not uncommon in the West Indian islands generally, and in the northern parts of the continent of South America. I cannot doubt that the *A. cordiflora* of Mutis' MS., quoted by Humboldt, found upon the Magdalena, where "children adorn their heads with it," in lieu of a hat or bonnet, is the same; and I am unable to distinguish the shadow of a difference in the *A. Gigas* of Guatemala, above quoted, from our plant. Indeed I possess specimens, gathered by Mr. Skinner in Guatemala, which in no respect whatever differ from the Jamaica one. Our friend Mr. Miers recognizes it as a

Brazilian species; and he was often led to compare the large flaccid blossoms on the bushes, to coloured pocket-handkerchiefs laid out to dry. The other English specific name (Poison Hog-meat) is given on account of its virulent nature, for though, says Dr. Lunan, "the plant is so abominably fetid that it is detested and shunned by most animals, yet when hogs venture, through necessity, to eat of it, it destroys them." Tussac, who gives a splendid figure of this plant, in his Flore des Antilles, relates that a whole herd of swine having been driven into the woods, where this *Aristolochia* was common, had entirely perished from eating the roots and young stems.

In our stoves, where it is best planted in the ground, though it succeeds tolerably well on a pot-trellis, it flowers during most of the summer months and in autumn; but the blossom, when once fully expanded, is of short duration.

Descr. *Stem* and *branches* shrubby, climbing: young herbaceous portion downy. *Leaves* alternate, cordate, acuminate, moderately downy, on rather long *petioles*. *Peduncles* lateral, opposite the leaf, solitary, single-flowered, striated, longer than the petioles, bearing a cordate perfoliate bractea near the middle, gradually passing into the club-shaped, sulcated, elongated, inferior, pedunculiform *germen* or *ovary*. *Flower* drooping, of vast size, and worthy of observation while in bud (see Tab. 4369); the younger buds, especially, are bent like a siphon in the tube, so as to resemble the body and neck of a bird, while the limb, in that state, resembles the head and beak thrown back upon the body, as a Pelican when that bird is at rest, whence the name: the gradual enlargement of the limb and extension of the tail-like point take away from the similarity. The fully-formed blossom presents a striking contrast to that of the *Aristolochia anguicida*, figured in our last Number (Tab. 4361). The *tube* is inflated and, as in the bud, bent like a siphon, but contracted in the middle so as to resemble a double sack, and is, as well as the whole of the outside of the perianth, of a pale, dingy yellow, inclining to green, downy, marked in the lower portion of the tube with six, prominent, purplish *ribs*; these branch and increase in the upper portion and in the limb, and everywhere anastomose with cross-veins, so as to present a reticulated appearance. The entirely expanded *limb* is broadly ovato-cordate, entire but waved at the margin, and terminated by a very long slender *tail*: the whole inner surface is radiated and reticulated with veins, deep blood-purple in the centre and within the mouth; the rest is dirty white, mottled with blood-purple about the veins. The *orifice* of the *tube* is large, subtrigonal. *Column* short, bearing six, sessile, oblong *anthers*, and terminated by the six upright lobes of the *stigma*.

Tab. 4368. Flower:—*nat. size*. Fig. 1. Column of stigma and stamens:—*nat. size*.
Tab. 4369. Branch, with leaves and flower-buds:—*nat. size*.

reous *Myrtaceæ*, and not a few *Ternströmiaceæ*; the most common of which is the Camellia-like *Gordonia Ceylanica*.

There is much here to remind the European of his native country. Different species of *Rubus* and a Barberry abound along the wooded margins of the plains, as well as two species of *Viburnum* or Guelder-Rose, and a shrubby St. John's Wort (*Hypericum Mysorense*), bearing large yellow flowers. The dry open banks are covered with violets and *Lysimachiæ*, while in the open plains are to be found two species of *Potentilla*, an *Anemone*, a *Geranium*, two kinds of *Ranunculus* or Butter-cup, a Lady's Mantle, not unlike the *Alchemilla vulgaris* of England, a little blue star-blossomed Gentian, two species of Sun-dew or *Drosera*, a Campanula, a *Valeriana*, and in the bogs several kinds of *Juncus* and *Carex*.

At the health-station on the plain of Newera-Ellia, which is about 6,200 feet above the level of the sea, there are several gardens where most of the vegetables of Europe grow freely. European fruit-trees have also been tried; but no success has attended the experiment, nor was such to be expected; for although during the cold season the thermometer falls occasionally in the morning to nearly freezing point—the annual range being from 35½° to 80°, with a mean daily variation of 11°,—the cold is not sufficiently intense or of long enough continuation to give those trees the period of rest which they require. In place of losing their leaves for nearly six months of the year, the Peach and the Cherry are here evergreens, and are hence kept in such a continued state of excitement as to prevent their bearing. The Peach does, indeed, give a poor crop of very inferior quality; but although the Cherry blossoms annually, its fruit never comes to perfection.

Although the Neelgherry range, from its near geographical position, has more species in common with the tracts of a similar elevation in Ceylon than any other part of India, yet these, from their small numbers, are evidently only stragglers northward: the very great number of species peculiar to the mountains of Ceylon, and to them alone, proves that these mountains form a distinct centre of creation. This I shall illustrate by a few examples from some of the better known natural orders and genera of plants. Beginning with *Ranunculaceæ*, we find three species of *Ranunculus*, belonging to the Flora of the Neelgherries, and two to that of the mountains of Ceylon, one species only being common to both countries. Of *Magnoliaceæ*, Ceylon possesses four or five species of *Michelia*; all of which are different from the solitary one found on the Neelgherries.

Each country has a Violet peculiar to itself, with another that is found in them both. Both places possess about half a dozen species of *Elæocarpeæ* each, but only one is held in common; and the same is the case with the Order to which the Tea belongs—*Ternströmiaceæ*. The genus *Impatiens*, that to which the garden Balsam is referable, affords one of the strongest arguments in favour of the fact I am now illustrating; for while each country contains upwards of twenty species, certainly not more than three are common to both, and none of the other Ceylon species are known to exist elsewhere. Of *Rosaceæ* we find that the Neelgherry range has only three species of *Rubus*, while there are no less than eight found on the mountains of Ceylon, three of which are peculiar to them. Both countries have an *Alchemilla* in common; while the Agrimony of Ceylon does not exist on the Neelgherries, but is found abundantly on the Himalaya range; and I have lately described a new species of *Poterium* from Adam's Peak, the only one which has hitherto been met with in India. Two species of *Potentilla* grow in Ceylon, and three on the Neelgherries, one only being seen in both countries. A comparison of this kind might be extended to a great length; but enough has already been shown to prove that while the Flora of the central part of the Island has more affinity with that of the Neelgherries than with any other part of the world, yet it must have had a creation of its own, nearly allied, indeed, to the other in forms, but very distinct in individuals.

Although many of the genera found in the upland regions of Ceylon are common in Europe, none of the Ceylon species are identical with European ones. Indeed, there is not to be found growing really wild in the Island, a single species exactly the same as any European one. A few, however, have become more or less naturalized, having been introduced along with garden and other seeds. They are the common Sow-thistle (*Sonchus oleraceus*), the common Chick-weed (*Stellaria media*), the Mouse-ear Chick-weed (*Cerastium vulgatum*), the Corn Spurrey (*Spergula arvensis*), and the annual Meadow-grass (*Poa annua*). All these, with the exception of the first, which is much more general, are nearly confined to the plain of Newera-Ellia. In all countries, introduced plants, which find a congenial soil and climate, and which produce their seeds in profusion, of a nature to be easily blown or carried about from place to place, are sure to naturalize themselves; and often in the course of a few years they cannot be distinguished from the really original denizens of the clime. Besides those from Europe, just enumerated, there are many others, natives of distant tropical countries, which are now rapidly spreading themselves on the Island; and as it is of importance to distinguish them from such as are truly natives, I shall here enumerate all those species of which I possess sufficient evidence to establish their exotic origin, and mention the countries from which they have been brought.

The two species of Prickly Pear (*Opuntia*), now so common in dry sandy localities in the low country, are natives of the tropical parts of the Continent of America, as is, indeed, the whole of the *Cactus* tribe. The beautiful rose-coloured Periwinkle (*Vinca rosea*), which has so completely overrun the Cinnamon gardens at Colombo and other similar localities, is a native of the island of Madagascar, though it has now perfectly established itself in nearly all tropical countries. The climbing *Allamanda cathartica*, with its dark green leaves and golden bell-shaped blossoms, is a native of the Guianas, and was no doubt introduced by the Dutch. The *Lantanas*, which are to be met with almost everywhere in bushy places and in hedges, are natives of the West Indies; and so is the yellow-flowered *Turnera ulmifolia*, common by road-sides about Colombo. The Cape Gooseberry (*Physalis Peruviana*), now so plentiful about Rambodde and Newera-Ellia, is from the mountains of Peru. The Four-o'clock plant (*Mirabilis Jalapa*), common about Kandy, is a native of Mexico and the West Indies; and the Ipecacuanha plant, as it is erroneously called, (*Asclepias Curassavica,*) with its orange blossoms, and seeds with long silky tails, is a South American. Most of these must have been long established before the English took possession of the country; but the following are well known to have escaped from the Botanical Gardens at Colombo or Peradenia during the last five-and-twenty years. The small white-flowered *Passiflora fœtida*, a perfect weed everywhere, is a native of the West Indies and Brazil, and only introduced to the Island by Mr. Moon, so short a time ago as 1824. Two species of *Crotalaria*—*C. Brownei*, a native of Jamaica, and *C. incana*, a native of the Cape of Good Hope; the Mexican Coreopsis-like *Cosmos caudata*; the Peruvian blue-flowered *Nicandra physaloides*; and the South American Sensitive-plant (*Mimosa pudica*), are not only common weeds about Peradenia and Kandy, but are fast extending themselves in all directions, the first mentioned species having now nearly reached as far as Rambodde on the Newera-Ellia road. *Brucea Sumatrana*, a shrubby native of the Eastern islands, and an escape from the Peradenia gardens, now forms part of the low jungle on the neighbouring Hantane range: and *Buddleia Madagascariensis*, a native of Madagascar, and two small kinds of Passion-flower (*P. suberosa* and *glauca*), both natives of the West Indies, are fast following. *Ageratum conyzoides,* everywhere prevalent and one of the great pests of the Coffee Planter, is of American origin, though now thoroughly naturalized in all tropical countries.

The above, though only a rapid sketch of the more prominent features of the vegetation of the Island of Ceylon, is sufficient to shew the great interest and variety of the materials of which it is composed, and the relation which it holds to that of other parts of the globe. Much, however, still remains to be done, before a detailed exposition can be offered to the world.

Botanical extracts from Mr. Low's HISTORY of BORNEO.

The climate of Borneo is distinguished by constant moisture and moderate warmth, which keep up a perennial vegetation. The refreshing showers and continual but gentle heat cause the plants and trees to grow during the whole year, the forests being decked with that perpetual verdure, which confers on the Bornean Islands, when viewed from the sea, an aspect of unexampled beauty. Shrubs of *Hibiscus* and flowering-trees, belonging to the genus *Barringtonia,* overhang the margin of the ocean; while the far inland mountains are clothed to their summits with dense and rich vegetation.

Europeans never find the climate oppressively hot. The thermometer averages 70–72° Fahr., in the mornings and evenings, 82–85° at the hottest part of the day; 92° and 93° is the maximum, and the mercury very rarely attains it.

Though no part of the world boasts such luxuriance of vegetable life as these Isles of the East, their soil is by no means so invariably fertile as the appearance of the forests would lead a cultivator to expect. This remark principally applies to Sumatra, where moisture seems to supply the main impulse to vegetation. Java is highly fertile, and what I have seen of Borneo appears so too. The soil of Sarãwak is a rich yellow loam, covered with a surface of six to twelve inches of very productive mould, formed by the decay of the forests. It is admirably suited to the growth of the *Sugar-cane,* which attains greater perfection at Borneo without the slightest culture, than it exhibits in Ceylon under the fostering care of Europeans. I have often seen *Sugar-canes* at Sarãwak eighteen feet long, abounding in the

4370.

itch del et lith

Reeve, Benham & Reeve, imp.

TAB. 4370.

ANGRÆCUM CAUDATUM.

Long-tailed Angræcum.

Nat. Ord. ORCHIDEÆ.—GYNANDRIA MONANDRIA.

Gen. Char. (*Vide supra*, TAB. 4145.)

ANGRÆCUM *caudatum*; foliis loratis canaliculatis emarginatis, spica radicali pendula flexuosa 4-flora, labello late obovato-cuneato rostrato serrulato, calcare longissimo. *Lindl.*

ANGRÆCUM caudatum. *Lindl. Bot. Reg. t.* 1844.

A species of the rare genus *Angræcum*, with so remarkable a spur that, as Dr. Lindley observes, it has no parallel but in the *Habenaria longicauda* (Bot. Mag. t. 2957), and in another individual of the present genus, *A. sesquipedale*, Petit-Thouars, Orchid. Mascar. t. 66 and 67. It is a native of Sierra Leone, whence it was imported by Messrs. Loddiges of Hackney; but it is still, I believe, rare in our stoves. This formed part of the late Mr. Clowes' rich collection, now incorporated with that of the Royal Gardens, where, attached to rough pieces of wood and suspended from the ceiling, it flowers in October.

DESCR. An *Epiphyte*, with large fleshy *roots*, from which (without pseudo-bulbs) immediately spring the distichous, channelled, subcoriaceous, dark green, recurved *leaves*, obliquely and deeply notched at the apex. *Racemes* long, slender, zigzag, from the base of the leaves, about four-flowered. *Flowers* large, handsome. *Perianth* spreading. *Sepals* and *petals* (the latter rather larger) uniform, linear-acuminate, green. *Lip* pure white, broadly obovato-cuneate, waved and crenate, with a long mucro from the apex; the base has a small lamella on each side. *Spur* a span and more long, flexuous, cylindrical, a little tapering, pale brown, entire or notched at the apex. *Column* short, erect, thickened at the base, brownish, with a very long rostrum.

Anther-case ending in a long beak, shorter than that of the column.

Fig. 1. Column and Anther-case, with the base of the ovary and of the spur:—*magnified.*

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TAB. 4371.

ALLOPLECTUS CONCOLOR.

Whole-coloured Alloplectus.

Nat. Ord. GESNERIACEÆ.—DIDYNAMIA ANGIOSPERMIA.

Gen. Char. (*Vide supra,* TAB. 4216.)

ALLOPLECTUS *concolor*; fruticosus erectus, foliis oblongo-ellipticis utrinque acuminatis integerrimis glabris, floribus (calyce corollaque) axillaribus subsessilibus aggregatis concoloribus rubris, sepalis triangularibus integerrimis glabris, corollæ hirsutissimæ clavatæ tubo superne insigniter ventricoso, ore valde obliquo, limbo erecto-patente.

An undoubted congener with *Alloplectus diochrous,* (supra Tab. 4216,) having the same habit, but smaller flowers, calyx and corolla uniformly red, the latter much more ventricose above at the upper part of the tube, with the mouth more oblique. It is, we presume, an inhabitant of Brazil, having been sent to Kew by Mr. Galeotti in 1846, under the garden name of *A. eriocalyx,* without any indication of its locality.

DESCR. *Stems* about two feet high, shrubby, but succulent, terete, scarcely branched, green tinged with purple. *Leaves* opposite, petaloid, thick, fleshy, between oblong and elliptical, entire, acuminated at both ends, obliquely penninerved, glabrous, dark green above, pale beneath. *Flowers* axillary, aggregated, sessile. *Calyx* lax, red, deeply cut into five triangular, spreading, waved *segments* or *sepals*. *Corolla* inserted laterally at the base, thus forming a blunt spur, red, very hairy (pale at the base); the *tube* singularly ventricose above on the upper side, so that the outline of that side almost represents the letter S: the *mouth* small, very oblique; the *limb* of five small, rounded,

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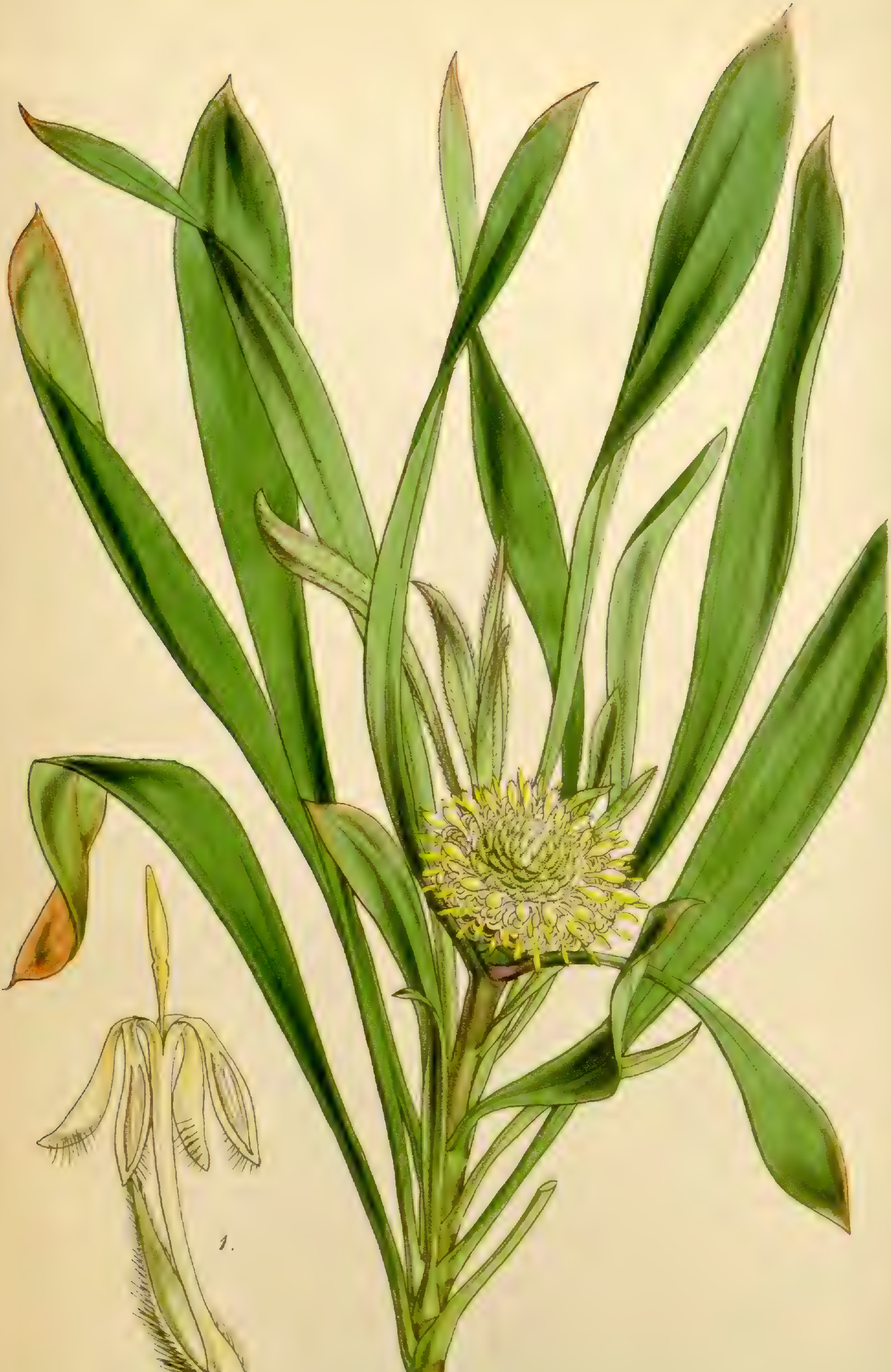
moderately spreading segments: stamens included. *Ovary* superior, ovate, with a large fleshy gland on the underside at the base. *Style* included. *Stigma* emarginate.

Fig. 1. Corolla. 2. Pistil and hypogynous gland:—*slightly magnified.*



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Reeve, Benham & Reeve, imp.

TAB. 4372.

ISOPOGON ATTENUATUS.

Attenuated-leaved Isopogon.

Nat. Ord. PROTEACEÆ.—TETRANDRIA MONOGYNIA.

Gen. Char. Perianthium quadrifidum, tubo gracili diutius persistente. *Squamæ* nullæ hypogynæ. *Stylus* totus deciduus. *Stigma* fusiforme v. cylindraceum. *Nux* sessilis, ventricosa, undique comosa.—Frutices *rigidi.* Folia *glabra, plana v. filiformia, divisa v. integerrima.* Capitula *terminalia, raro axillaria.* Flores *modo densissime imbricati, strobilo globoso, modo fastigiati, receptaculo communi planiusculo, paleis deciduis congestis. Br.*

ISOPOGON *attenuatus*; foliis spathulato-oblongis inferne longe attenuatis mucronulatis obsolete 3-nerviis ramulisque glabris summis (bracteis) strobilum terminalem sessilem hemisphericum longe superantibus basi dilatatis, involucri squamis exterioribus ovatis acutis glabriusculis, interioribus angustatis villosis, calycis lobis tubo glabro parum brevioribus villosis, stigmate inarticulato tenui-cylindraceo glabro. *Nees.*

ISOPOGON attenuatus. *Br. Prodr. p.* 366. *Nees in Plant. Preiss. v.* 1. *p.* 508. *Spreng. Syst. Veget. v.* 1. *p.* 460.

A native of Lewin's-Land on the southern shores of New Holland, according to Mr. Brown, its first discoverer. Allan Cunningham collected it at King George's Sound, Preiss and Drummond, at Swan River. The latter sent us seeds, which produced flowering plants in the spring of 1847. It is a species nearly allied to *Isopogon longifolius*, Br. (figured in Bot. Reg. t. 900), but abundantly distinct as a species.

DESCR. With us this has formed a *shrub* two to three feet high, with rounded, glabrous, fuscous, erect *branches. Leaves* a span and more long, scattered, linear- or oblong- spathulate, mucronate, much tapering at the base, glabrous, coriaceous, obsoletely three-nerved. A few smaller leaves beneath the capitulum are villous. *Capitulum* terminal, hemispherical, formed of numerous palish yellow *flowers. Scales* of the *involucre* imbricated; outer ones ovate, scarcely hairy; inner ones narrower, villous. *Perianth* with the tube glabrous, except at the base, where it is swollen by the contained germen, and is hairy. *Segments*

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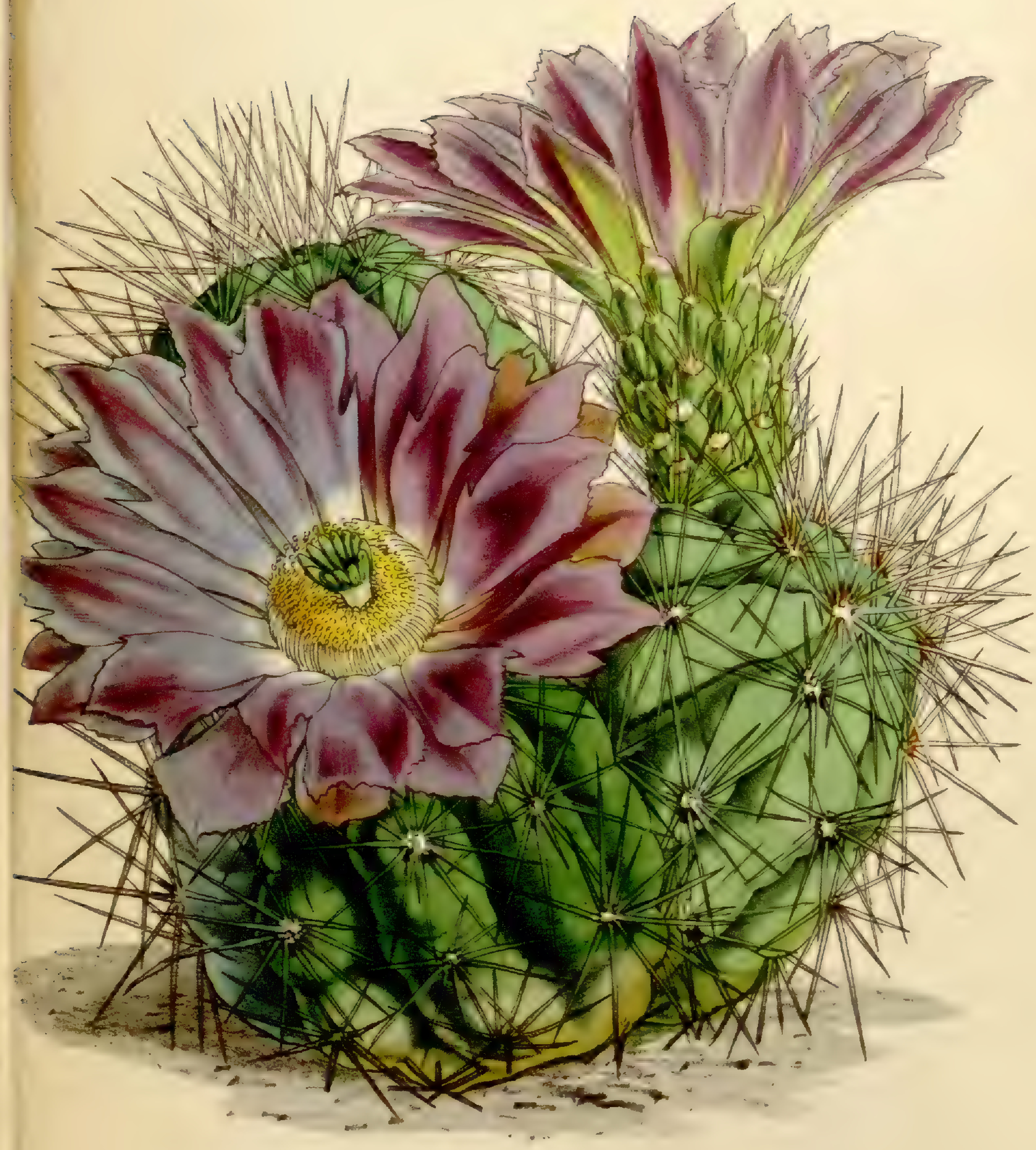
spathulate, reflexed, more than half the length of the tube, hairy on the back at the apices, within bearing the linear-sagittate, sessile *anther*. *Style* between cylindrical and fusiform, constricted below the middle, yellow.

Fig. 1. Flower and bractea :—*magnified.*

4373.



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Reeve Benham & Reeve imp

TAB. 4373.

ECHINOCACTUS CHLOROPHTHALMUS.

Green-eyed Echinocactus.

Nat. Ord. CACTEÆ.—ICOSANDRIA MONOGYNIA.

Gen. Char. (*Vide supra*, TAB. 4124.)

ECHINOCACTUS *chlorophthalmus*; glomeratus subglobosus viridis profunde subdecem-sulcatis, tuberculis conico-hemisphæricis vix angulatis sæpe confluentibus, areolis prominentibus lanatis, aculeis 10–12 acicularibus radiantibus rectis centrali validiore junioribus basi rubris, calycis tubo cylindraceo tuberculoso-squamatis, squamis v. tuberculis imbricatis apice lanatis aculeatisque summis petaloideis, petalis purpureis basi pallidis, stigmatis radiis viridibus.

Whatever reflections may be made on the uncouth and grotesque forms of the majority of individuals in the *Cactus* family, it must be conceded of the *Echinocactus* group, especially, that few plants can excel them in size and beauty of the blossoms. In the present instance a single flower equals or exceeds the height as well as the breadth of the entire plant; while the glossy purple of the starry petals, pale at their base, with the yellow mass of dense anthers, and the almost emerald green of the eye-like stigma, cannot fail to call forth admiration. It inhabits Real del Monte, Mexico, it blooms in the summer months, and will rank next to *E. hexædrophorus* (vide supra, Tab. 4311).

DESCR. Nearly globose, about the size of a small orange, glaucous-green, clustered, with about ten or twelve deep furrows, the intermediate ridges divided into six to eight somewhat hemispherical, but very irregular *mammæ*, at the top of which is a woolly *areole*, bearing seven to ten slender acicular spines, half to three-quarters of an inch long, spreading; but the central one is longer and stronger than the rest:—their colour is pale brown, red at the base in the younger ones. *Flowers* large, solitary, from near the summit of the plant. *Calyx* obovato-cylindrical, imbricated with numerous ovate, mammillary scales, each terminated by a woolly areole and a tuft of small spines,

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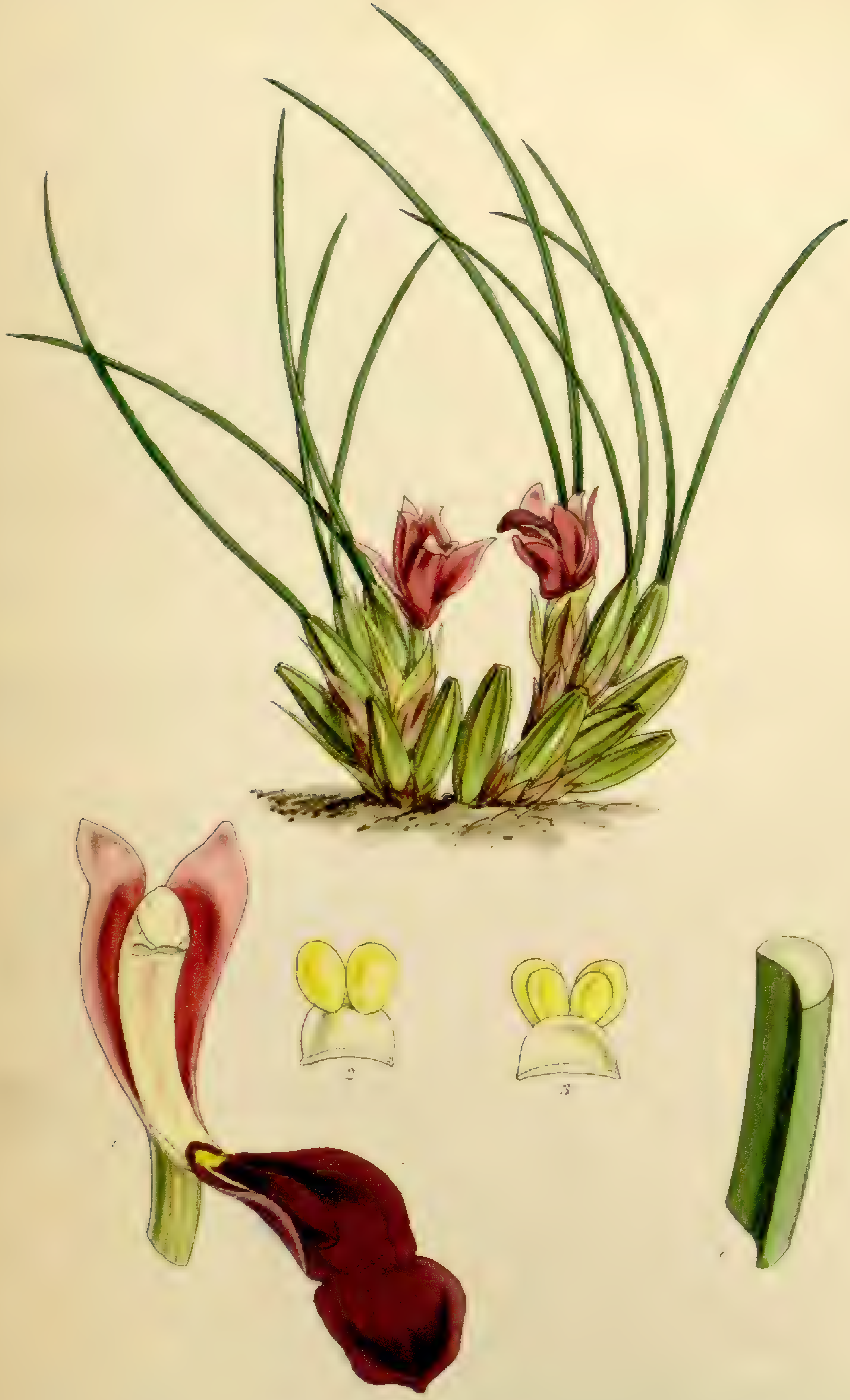
except a few of the uppermost which gradually become petaloid. *Petals* very numerous, spathulate, rather acute and serrated at the apex, glossy purple, white at the base. *Stamens* very numerous, compact; *anthers* small, yellow. *Style* thick, white, a little longer than the stamens. *Stigma* of several bright green, erecto-patent *rays*.

4374.



Reeve Benham & Reeve imp.

TAB. 4374.

MAXILLARIA ACICULARIS.

Needle-leaved Maxillaria.

Nat. Ord. ORCHIDEÆ.—GYNANDRIA MONANDRIA.

Gen. Char. (*Vide supra,* Tab. 4228.)

MAXILLARIA *acicularis*; subcaulescens, pseudo-bulbis subfusiformibus sulcatis diphyllis basi squamosis, foliis linearibus acuminatis canaliculatis dorso convexis, pedunculis arctissime squamosis axillaribus unifloris, perianthio connivente, sepalis petalisque ovatis acutis, petalis obtusioribus, labello indiviso oblongo obtuso disco illinito, callo lineari apice rotundato integro. *Lindl.*

MAXILLARIA acicularis. *Herbert MS. in Lindl. Bot. Reg.* 1837, *sub t.* 1986.

This delineation was taken some years ago from flowering specimens at Woburn. The species is a native of Brazil, and was first known to Dr. Lindley, through a drawing made by the late Hon. and Rev. William Herbert. It is not an attractive plant, to those who only look to size of flower or gaudy colouring as of value in the vegetable creation. It is a distinct and well-marked species, its affinity even being dubious, except, as Dr. Lindley observes, it be with *M. uncata.*

DESCR. A small plant, consisting of clusters of oblong or subfusiform *pseudo-bulbs,* deeply sulcated, springing from a short ramified *stem* or *caudex,* partially clothed with brown membranaceous scales below, above bearing two setaceo-fusiform *leaves,* three to four inches long, dark green, grooved on the upper side, semi-terete on the under. *Peduncle* short, from the base or axil of a *pseudo-bulb,* and densely clothed with oblong, membranaceous, brown *scales,* solitary, single-flowered. *Flower* erect, dark blood or chocolate-coloured. *Perianth* erect (so that the flower is almost closed). *Sepals* and *petals* oblique or subovato-spathulate, obtuse: *petals* the same, but paler coloured, and decurrent with the white elongated *column. Lip* rather longer than the rest of the perianth, oblong, obscurely three-lobed, somewhat spurred

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below, with a flattened ridge or callus at the base within. *Column* white, semi-terete, wingless. *Anther-case* hemispherical. *Pollen-masses* in two unequal pairs on a broad white stalk.

Fig. 1. Flower, with the calyx removed,—the lip forced back. 2 and 3. Pollen-masses. 4. Portion of a leaf:—*magnified.*

richest saccharine juice. The natives grow several kinds, some of which they assert to be the wild produce of the country; but the *Golden-yellow Cane*, imported by the Chinese, is most esteemed. It is not used for making sugar; but, the outer skin being removed, the inner part is chewed, and the fibrous portion is thrown away after the sweet juice has been thus extracted.

Some *Nutmegs*, planted for an experiment by Mr. Brooke, grew admirably without manuring or any attention, being wholly left to nature and not even the weeds removed. The result proved that this valuable spice, which requires much care and cost for its production at Sincapore and Penang, may here be raised, as cheaply as Cocoa-nuts, viz., merely by clearing away the weeds.

Some plants of *Cinnamon*, *Nutmeg*, and *Clove*, are growing now in a garden at Sarãwak, and attesting the suitableness of its soil and climate to the production of the finer spices.

As may be supposed, the heat and moisture of Borneo are too great for European fruits and vegetables in general. Some kinds, as *French Beans, Cucumbers, Endive, Tomatos,* and *Asparagus,* have succeeded tolerably; and it may be hoped that, on the mountains, others will do well; and that the Settlement of Labuhan will never be so destitute of culinary vegetables as is Sincapore, where the few cabbages which are produced are cultivated in flower-pots and require the greatest attention.

The Chinese in Sarãwak have several gardens of native esculents near the town. The *Egg-plant* there yields an excellent fruit; and a large *Radish* is much prized, which, when boiled, tastes like a Turnep. *Sweet Potatos, Yams, Earth-nuts* (*Arachis hypogæa*), and various kinds of *Pulse, Cucumbers,* and *pot-herbs* are grown for the use of Europeans; also *Sugar-Cane* and *Pine-Apples* for the Malays, who are averse to the trouble of cultivating these esculents for themselves. Some kinds of *Fern* afford an excellent vegetable in their unopened fronds, which are boiled and preferred by foreigners to most of the productions of the island, except the cabbage of various Palms. Though several sorts of *Fern* are eaten, the *Marattia,* which grows plentifully on river-sides, is preferred.

Of all the esculent vegetables, the heart or cabbage of the Palm called *Nibong,* is the most esteemed. It consists of the whole unexpanded foliage, and is delicately white, with a very sweet nutty flavour. It excels the cabbage of the *Cocoa-nut Palm,* but is inferior to that of the *Pinang* or *Areca,* which, however, on account of the value of the tree, is very seldom used, the extraction of this edible part causing, invariably, the destruction of the entire tree. The *Nibong Palms* are very plentiful near the mouths of all the rivers, and are prized also for house-building, &c. Their stems being quite round, unbranched, and generally measuring half a foot in diameter, little trouble is necessary, beyond felling the tree and cutting it into lengths. The outside rind is hard and an inch thick: the inner portion being, as in all Monocotyledonous stems, the most recently formed, is soft, and readily decays, which causes the *Nibong* to be more used by the poor than the rich inhabitants. Posts, formed of this tree, last only three or four years, and then require either support or renewal. Rafters and flooring are made of the hardest part. The laths for floors are bound together, when laid at distances of two feet asunder, by rattans; a plan adopted in order that the dirt and rubbish of the house may fall through the interstices of the floor, and be washed away by the next high tide of the river.

The *Bamboo,* of which the shoots are cooked by the natives and which the Europeans eat pickled, is as useful to the Dyaks as the *Nibong* to the Malays, and grows as abundantly in the interior as the other does on the coasts. There are many kinds; but the most esteemed is the *Large* or *Water Bamboo,* which attains a height of sixty feet, and appears to thrive best in the rich soil of mountain-sides. Six other sorts, all much smaller, are still very valuable; for they grow in more accessible places and have harder stems than the Large Bamboo. They are useful, as in India, for an infinity of purposes; and the poor people, who cannot afford cooking-pots of earth or brass, even contrive to apply them to that use, in the following manner. The Malays and Dyaks cut the green Bamboo in lengths of two or three feet, and fill the interior with rice or meat, chopped into little pieces, and mixed with water. To cook the food properly, the fire must come exactly in contact with the *Bamboo* joint, which rests on the ground beyond; while the green and hard part of the cane, touched by the flame, resists it so long, that the provisions are sufficiently prepared before this singular pot ignites. A bundle of leaves, placed in the mouth, serves for a lid.* These Bamboos are so valuable, that like, the fruit-trees planted near a village, they become individual property.

Next in the rank of useful vegetable productions is the *Cocoa-nut Palm,* too well known to require description here. Unfortunately, the wars, which prevailed on the western coasts of

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* The rice, called *Pulut,* hereafter to be described, is most relished when thus cooked in a pot of green Bamboo.

Borneo, have nearly exterminated this noble tree; but it still abounds to the northward, and is said to cover the Natunas and Sooloo Islands. From the former group the people of Sarãwak derive their supply, giving in return the rice which the natives of the Natunas require, for they do not raise rice on those islands. About fifty boats, carrying from six to twenty tons each, bring annually to Sarãwak, nuts, oil, and sugar, the productions of this tree. The sugar is coarse, resembling molasses, and is made by boiling the sap of the flower-stem.

The *Sago-Palm* (*Metroxylon*) attains great perfection, and large quantities of the rough sago are sent from the west coast to Sincapore. The Sago of commerce is the heart of the plant. In the parts where it abounds it forms the chief food of the inhabitants, who always, however, prefer rice when they can procure it. The tree grows in marshy spots and rarely exceeds thirty feet in height. The time for collecting the sago is just before the tree begins to show its large, spreading, terminal flower-spike, which it generally does at seven or eight years old. While young, the stem is admirably protected by its long and stout spines from the wild hogs, which would otherwise destroy it. As it grows and the trunk hardens, the spines drop off, and the central farina is enclosed in the outer wood. When the flower and fruit are allowed to perfect themselves, which is in two years from the first appearance of inflorescence, the pith of the centre is found dried up, the leaves have fallen, and the plant perishes. The *Sago-Palm* is seldom propagated from the seed, which is generally unproductive; but it may be raised in any quantity by offsets, which are freely produced. Among the Dyaks who grow rice, Sago is little used for food, except in times of scarcity. The whole of the Sago exported from Borneo is in a crude state, and manufactories are established at Sincapore and Batavia for its preparation and refinement; where the rough article, an uninviting substance both to eye and smell, undergoes a wonderful change, and emerges in the form of the Pearl Sago of commerce.

The *Arenga saccharifera*, which most resembles the *Sago-Palm* in general aspect, affords the best Toddy in Borneo. It is extracted by cutting off the large lateral branches of fruit. When these are about half-grown, they are severed close to the division of the peduncle, and Bamboos being suspended below, a gallon of juice will flow daily for two months from a good tree with two incisions; if care be taken to expose a fresh surface on the severed part, by taking off a fresh slice every morning. The Toddy is emptied from the bamboo twice a day: when fresh, it forms a very agreeable beverage, though not improved by the Dyak custom of steeping a piece of bitter bark in it, which communicates its own taste to the fluid. An excellent and durable cordage is made from the hairy filaments which interweave the stem and axils of the leaves; and the same substance is plaited by the natives into ornaments for the arms, legs, and neck, which are more pleasing in their deep black hue and neat appearance (at least to the eyes of Europeans), than the beads and brass with which these people are fond of adorning their persons.

The graceful *Betel-nut*, or *Areca-nut Palm* (*Areca Catechu*), does not grow in such abundance as to form an article of exportation: on the contrary, large quantities are imported; for these trees, like the Cocoa-nuts, were destroyed during the wars, which, previous to Mr. Brooke's arrival, desolated the country. The nut is only used for chewing with the *Siri* leaves (*Piper*), Lime, and Gambier, a practice universal in the Indian Archipelago. The flowers of the *Areca* are deliciously fragrant: they are in request for all festive occasions, and are also considered a necessary ingredient in the medicines and charms employed for healing the sick: their delightful perfume, together with the graceful feathery foliage, borne on a slender and elegantly tapered stem, render this tree the universal favourite among the Palm tribe.

Rattans and *Canes*, the produce of many species of *Calamus*, are valuable to the natives, both for home use and exportation. They abound in old and damp jungles, and prove very annoying to the pedestrian, whose clothes are caught by their strong curved prickles, and who can only extricate himself by stepping backward and carefully unhooking them. The various kinds differ much in size and appearance: some are so slender as scarcely to be observable, others are stout and rough: some are smooth, and others have their stems and leaves garnished with numerous prickles. Those called, in commerce, Malacca Canes, are of the larger sort. The Rattans of Borneo excel all the others, and are brought from the south and eastern parts of the islands in vast quantities, and exported to Sincapore and Batavia, and thence to India and China. The natives employ them for baskets, mats, and cordage, and where nails are unknown they serve the purpose of binding the frame of a house together. The drug called *Dragon's Blood* is procured from one of the larger *rattans*; but its manufacture is exclusively confined to the southern and little visited parts of the island, and is therefore not known to Europeans. It is annually sent in large quantities to Sincapore and Batavia, and thence to China, where it is much prized. The *Nipa fruticans*, though of humble growth among the Palms, is as valuable to the people of Borneo as any of its congeners. It is found on river-banks wherever the salt water reaches, and it overspreads the salt marshes for thousands of acres. Its chief value is for covering houses, and the roofs made of its leaves last for two years. Salt is procured from the ashes of the burnt foliage, and syrup and sugar from its flower-stalk. The fruit is also eaten. The plant has no stem; but its leaves, twenty feet long, spring from the centre.

The *Mangrove*, which inhabits the same spots as the *Nipa*, affords the best fire-wood, and a coarse bitter salt is extracted from its aerial roots.

The above enumeration includes those vegetable productions of Borneo which are used for home consumption. A separate notice will be taken of such as are collected for exportation.

(*To be continued.*)

The Bath Botanic Garden, Jamaica.

It will gratify our readers, we are sure, to know that the Botanic Garden of Bath, Jamaica, once a flourishing spot under the Directorship of Dr. Mc'Fadyen, then abandoned, or nearly so, for want of funds, has again revived under the charge of Mr. Nathaniel Wilson, aided by the active exertions of the Rev. Mr. Wharton and Mark J. Mc'Ken Esq., to all of whom the Royal Gardens of Kew are under great obligations for most valuable contributions to the stoves, to the Museum, and to the Herbarium. We make the following extracts from the last report drawn up by the able and intelligent Curator:—

"During the past year I have dispersed upwards of 4000 plants, nearly double the number that were called for the year before. As those plants that have been originally introduced, and for many years grown in the Island, are by this time fully dispersed and established, it is my intention gradually to abandon their cultivation, which I must, from the limited extent of the garden, of necessity do, to make space for the reception and full development of the more rare sorts recently introduced. As a grand repository of exotic plants, it will be necessary that a specimen of every introduced plant be kept in the garden, but beyond this, as far as the old plants are concerned, it is my intention to proceed, and I trust that this determination will meet with your approbation and concurrence.

"It is exceedingly desirable for the purpose of exchanging with other Botanic Gardens to mutual benefit, that our native plants, whether timbers, dye-woods, drugs, fruits, or ornamental, should be cultivated. To this end my attention is now directed, and my views have been greatly facilitated by the addition of the new piece of ground, so kindly granted to me by this hon. Board. It is now cleared and fenced, and I find it, both in soil and situation, adapted for the purpose I have in view.

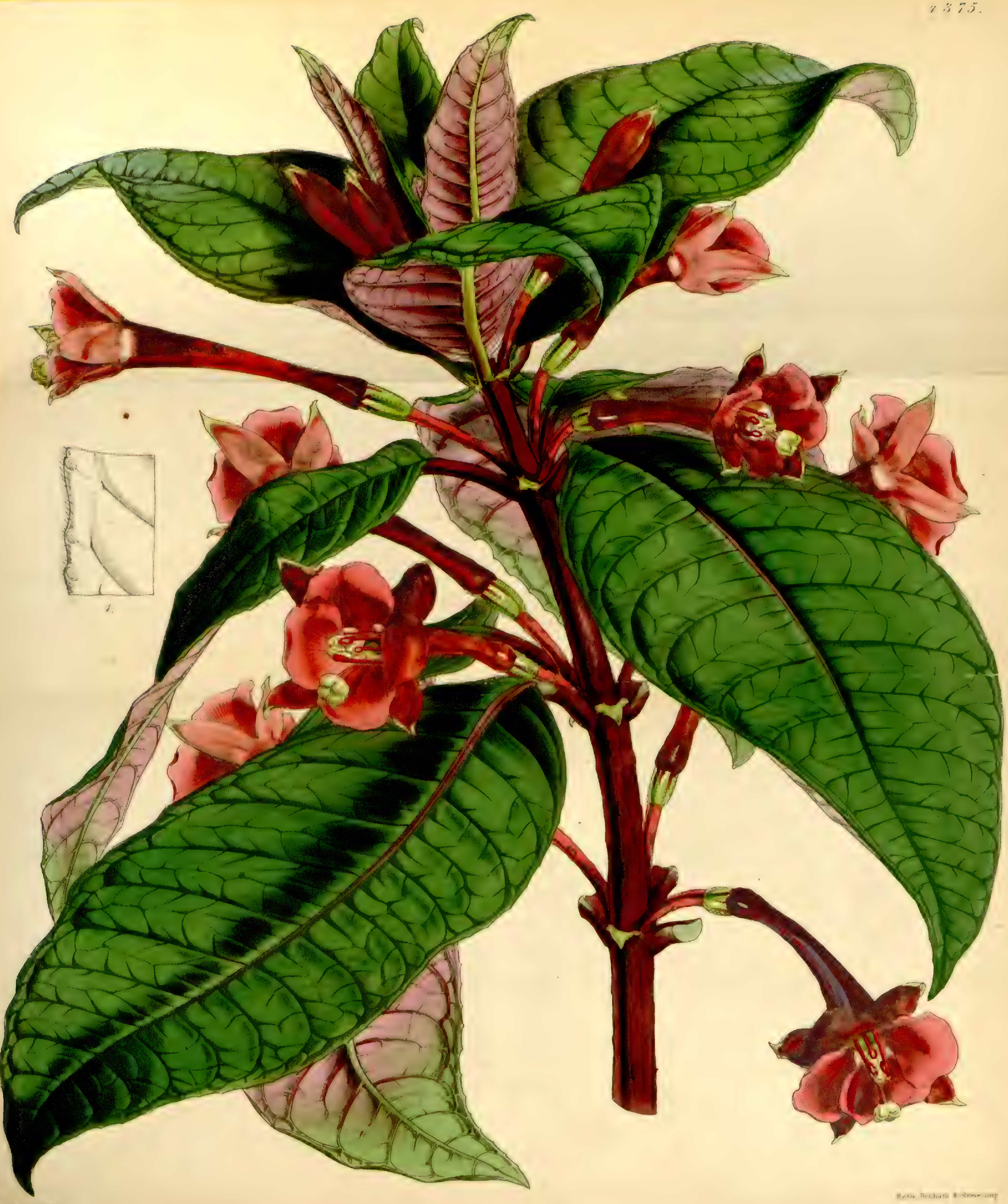
"I continue with success to propagate that useful spice, the Nutmeg, which I have no doubt will ultimately become one of the staple products of the Island.

"I am proud to say that it has fallen to my lot to introduce, within the last year, some of the most rare and valuable plants that ever were brought into Jamaica, including nearly all those I mentioned in my last report. Those of which I may truly boast are the Mangostan (*Garcinia Mangostana*), the Cinnamon (*Cinnamonum verum*), the Black Pepper (*Piper nigrum*), the vegetable Ivory, or Ivory-nut Palm (*Phytelephas macrocarpa*), the Longan (*Euphoria longana*), the Durion (*Durio zebethinus*), the Tonquin Bean (*Dipterix odorata*), the Gamboge Tree (*Xanthochymus pictorius*), the Camwood of Commerce (*Baphia nitida*), the Carob Tree (*Ceratonia siliqua*), the Wax Palm (*Ceroxylon andicola*), three new fruits of the Grenadilla kind (*Passiflora edulis, P. incarnata, P. Buonapartea*), the Maltese and Manderin Orange, and many other noble and beautiful plants, to the number of eighty-six, which have themselves been only recently introduced into England, chiefly from the Tropics, and I need hardly say are calculated to thrive here.

"For the cultivation of the Mangostan, which is reputed to be the very finest of Tropical fruits, and which will thrive best within the influence of sea air, Jamaica, from its insular nature, will doubtless be well fitted. The Durion, a fruit as large as a man's head, is considered of first-rate excellence; the Longan, too, is much esteemed for the dessert; the Black Pepper is a spice admirably adapted for (and of easy) cultivation; the Camwood is a dye-wood of considerable value, averaging in the London market £16 to £18 per ton, while the Logwood obtains only £5 or £6. The others are better known, and need not be particularly mentioned here.

"While on this part of my subject it will be proper for me, Gentlemen, to call your attention, and that of the community at large, to plants hitherto much neglected, or at best partially

4375.



Fitch del. et lith.

Reeve, Benham & Reeve, imp.

TAB. 4375.

FUCHSIA SPECTABILIS.

Showy Fuchsia.

Nat. Ord. ONAGRARIEÆ.—OCTANDRIA MONOGYNIA.

Gen. Char. (*Vide supra*, TAB. 4082.)

FUCHSIA *spectabilis*; ramis succulatis obtuse angulatis, foliis ternis amplis ovato-ellipticis petiolatis subacuminatis glanduloso-subdenticulatis ciliatis subtus ramisque purpureis, pedunculis petiolum æquantibus solitariis unifloris, floribus intense coccineis, calyce subhypocrateriformi, tubo longo basi inflato-globoso, laciniis ovato-acuminatis, petalis patentissimis subrotundis undulatis segmentis calycinis brevioribus, ovario oblongo sulcato, stigmate magno 4-lobo.

From the collection of Messrs. Veitch and Sons, Exeter, who gratified the Members of the Horticultural Society by the exhibition of it at their rooms in Regent Street, April 18th, 1848, when the large silver medal of the Society was awarded to it. It was then stated to be the *F. Loxensis* of Humboldt, and one of the handsomest Fuchsias yet in cultivation, its dark green leaves and brilliant scarlet flowers, with which the white-lobed stigma nicely contrasts, rendering it extremely attractive: to this character of its beauty may be added the blood-red colour of the flowering branches, and rich purple of the underside of the leaves, contrasted with the almost velvety rich green of their surface. I have only to dissent from its being considered the *F. Loxensis** of Humboldt, whose figure (Gen. et Sp. Pl. vol. vi. t. 536) is certainly quite at variance with our plant, as is the *F. Loxensis*, Benth. in "Plantæ Hartwegianæ," n. 733. The form and size of the leaves, and the size of the flowers, and, above all, of the stigma, are strikingly different

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* I have the pleasure of being authorized to say that Dr. Lindley is now quite of this opinion. He had indeed been previously misled by the wild specimen sent, to aid in the determination of the species, which belonged to another species, namely to *F. Loxensis*;—a fact that has just been stated in the Gardeners' Chronicle (May 13th, 1848), where the species is announced as "certainly a magnificent thing: the Queen of Fuchsias."

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in the two; and the present is assuredly a most distinct and undescribed species. It is not, indeed, entirely unknown to me; for I possess specimens of it in a collection sent by Mr. Seemann, of H.M.S. Herald, gathered in September, 1847, at "Pambo de Yèerba buena, El Equador." Mr. Veitch's plant, from Mr. Lobb, is probably from the same country; though the "mountains of Peru" are given as the station in the Gardeners' Chronicle; but the "Andes of Cuenca" is the true station, and this, I think, accords with Seemann's locality. Mr. Lobb himself spoke of it in his letter to Mr. Veitch as the "loveliest of the lovely, found in shady woods and growing from two to four feet high."

Descr. A moderate sized *shrub*, woody below, but with the *branches* stout and succulent, obscurely three-angled and of a rich blood-red colour, shining, glabrous. *Leaves* mostly ternate, six to eight inches long, between ovate and elliptical, petiolate, not tapering at the base, acute or slightly acuminate at the points, obscurely ciliated, entire at the margin, or only having minute tooth-like processes occasioned by the presence of small oblong glands, dark velvety green above, rich purple beneath, penninerved, the nerves nearly horizontal, but uniting within the margin so as to form a wavy vein, almost as in the leaves of *Myrtaceæ*. *Petiole* about an inch long, erect or spreading, stout, of the same colour as the branch. *Stipules* triangular, as in many *Rubiaceæ*, between the petioles. *Peduncles* axillary, solitary, single-flowered, red, shorter than the leaves, indeed, scarcely longer than the petioles. *Ovary* between cylindrical and turbinate, with four furrows. *Calyx* between infundibuliform and hypocrateriform, four inches long, bright red, the *tube* swollen at the base; *limb* of four spreading, ovate, acuminate segments, tipped with green. *Petals* large, deep red, nearly orbicular, waved, very patent, and pressed as it were upon the segments of the calyx, than which they are shorter. *Stamens* shorter than the petals, red. *Style* exceeding the stamens, terminated by a remarkably large, four-lobed *stigma*, rendered white, or yellowish-white, by the copious pollen.

Fig. 1. Portion of a leaf, to show the tooth-like gland:—*slightly magnified.*

4376

Fitch del. et lith.

Reeve Benham & Reeve imp.

TAB. 4376.

JATROPHA PODAGRICA.

Gouty-stalked Jatropha.

Nat. Ord. EUPHORBIACEÆ.—MONŒCIA MONADELPHIA.

Gen. Char. Flores monoici. *Calyx* 5-partitus æstivatione convolutiva. *Corolla petala* 5, calyce longiora, æstivatione convolutiva, cum glandulis 5 alternantia. *Stamina* 8–10; *filamentis* inferne connatis, superne filiformibus liberis, *antheris* introrsis bilocularibus. *Fœm.* ovarium glandulis 5 cinctum, triloculare, loculis uniovulatis. *Styli* 3, bilobi bifidive aut pluries dichotomi: *stigmata* crassa. *Capsula* 3-locularis, coccis monospermis.—Arbores *v.* frutices, *aut rarius* herbæ *lactescentes*, foliis *alternis integris v. sæpius palmatilobis*, floribus *axillaribus aut terminalibus corymbosis, sæpe læte coloratis.*

JATROPHA *podagrica*; caule erecto ramoso ramisque basi valde intumescentibus, foliis peltatis cordatis 5-lobis glabris lobis subovatis obtusissimis, stipulis glanduloso-fimbriatis, cymis longe pedunculatis terminalibus, calycis dentibus obtusis, corollæ lobis ovatis obtusis patentibus.

A very remarkable new *Jatropha* from Santa Martha, New Grenada, with a singularly distorted stem and branches; much swollen at their bases, succulent, pale greenish-brown; the main trunk and old branches marked with the almost obliterated scars of the fallen leaves, the younger portions of the branches of the plant, which are about an inch in thickness, showing the much larger scars of *recently* shed leaves, rendered more conspicuous by the persistent, fimbriated, and glandular stipules, one on each side the large scar. The cyme of flowers is large, and of a rich orange-scarlet. It flowers at almost all seasons of the year.

DESCR. Stem, in our plant, a foot and a half high, much and irregularly swollen at the base; branches also swollen at the base; the rest terete, green and succulent, marked with numerous pits or hollows whence the leaves have dropped, and with the somewhat palmate and deeply pinnatifid or ciliated glandular *stipules*. Only a few *leaves* appear at one time, and they are confined to the apices of the branches, on long petioles, cordate, peltate, five-lobed, glabrous, the lobes obtuse, entire, somewhat ovate. *Peduncles* terminal, elongated, bearing a rather large cyme of

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numerous, rather small, orange-red, monœcious *flowers*: the females few, in the axils of the main bracteas of the peduncles. *Calyx* cup-shaped, five-lobed, the lobes erect, very obtuse. *Corolla* deeply five- or six-partite, the segments ovate, spreading. *Stamens* six to eight, yellow: the filaments combined at the base, and having five glands there, united into a ring. *Ovary* ovate, with similar glands; *style* short, much divided into several green *stigmas*.

Fig. 1. Male flower. 2. Female ditto. 3. Transverse section of an ovary:—*magnified*.

4377.

Fitch del. et lith.

Reeve, Benham & Reeve, imp.

TAB. 4377.

ANOPTERUS GLANDULOSUS.

Glandular-leaved Anopterus.

Nat. Ord. SAXIFRAGEÆ.—HEXANDRIA DIGYNIA.

Gen. Char. Calycis tubus turbinatus imo ovario basi adnatus, lobis 6 brevibus acutis persistentibus. *Petala* 6 lobis calycinis alterna, calyci inserta. *Stamina* 6, cum petalis inserta, iis alterna et breviora. *Stylus* brevis. *Stigma* bifidum. *Capsula* oblonga, 1-locularis, bivalvis, valvulis ab apice ad basin dehiscentibus. *Placenta* ad earum margines. *Semina* ovata, compressa, ala superne aucta.—Arbuscula *glaberrima.* Folia *alterna ramis opposita, ovali-oblonga, utrinque attenuata, subsessilia, coriacea, calloso-dentata.* Racemi *simplices* 1–4 *subterminales.* Flores *interdum* 7*-fidi. DC.*

ANOPTERUS *glandulosus.*

ANOPTERUS glandulosus. *Labill. Nov. Holl. v.* 4. *p.* 86. *t.* 112. *De Cand. Prodr. v.* 4. *p.* 6. *Spreng. Syst. Veget. v.* 2. *p.* 133.

A truly handsome evergreen shrub, native of Van Diemen's Land, and introduced to the Royal Gardens of Kew by Ronald Gunn, Esq. We have hitherto treated it as a greenhouse plant; but in the milder parts of England, near the coast, it would in all probability bear the open air all the year round, perhaps, even about London, if trained to a wall having a good aspect. Its season of flowering (winter) would be unfavourable to the blossoming in such a situation; but the fine dark green foliage, not much unlike that of *Photinia serrulata,* is at all times a recommendation.

DESCR. A *shrub,* with us two to three feet high, with stout, terete branches. *Leaves* chiefly at the extremities of the new shoots, obovato-lanceolate, shortly acuminated, tapering below into a short *petiole,* persistent, dark green, penninerved, calloso-serrate, the young ones glanduloso-ciliato-dentate. *Racemes* longer than the leaves, axillary, at first covered with large membranous, coloured, deciduous *bracts. Pedicels* single-flowered, an inch and more long, with one or more small deciduous, subulate bracts. *Calyx* deeply six-partite; segments ovate, acute, persistent. *Corolla* of six, erecto-patent, concave, nearly orbicular *petals,* rather large, white, tinged with rose-colour. *Stamens* six, nearly as long as the petals. *Filaments* subulate. *Anthers* ovate-oblong, yellow. *Ovary* ovate, one-celled, tapering into rather a short *style.* *Stigma* bifid.

Fig. 1. Flower, from which the petals are removed. 2. Stamen. 3. Vertical section, and 4, transverse section of an ovary :—*magnified.*

4378.

Fitch del et lith.

Reeve, Benham & Reeve, imp.

Tab. 4378.

THYRSACANTHUS strictus.

Upright Thyrse-flower.

Nat. Ord. Acanthaceæ.—Diandria Monogynia.

Gen. Char. Calyx ultra medium quinquefidus, æqualis, brevis. *Corolla* tota tubulosa vel apicem versus dilatata, incurva, mollis, limbo v. quinquelobo subregulari v. distinctius bilabiato, *labio superiore* bifido, *inferiore* trifido. *Stamina* fertilia 2. *Antheræ* biloculares, ovales, loculis parallelis, connectivo oblongo subobliquo discretis. *Stamina sterilia* subulata, uncinata, capitata ad basin fertilium, vel nulla. *Stigma* bidentatum. *Capsula* a basi ad medium depressa sterilisque, hinc bilocularis di-tetrasperma. *Semina* retinaculis suffulta, discoidea.—Herbæ *vel* frutices *Americæ tropicæ*, cortice *lævi laxo colorato*, foliis *amplis cuneato-sessilibus aut in petiolum attenuatis.* Thyrsus *terminalis, modo densus*, ramis *brevibus cymosis (fasciculis) oppositis verticillos referentibus, modo laxior in racemum simplicem abiens.* Bracteæ *et* bracteolæ *parvæ.* Flores *longiuscule pedicellati, coccinei. Nees.*

Thyrsacanthus *strictus*; fruticosus glaber, caule obtuse tetragono, foliis oblongis acuminatis in petiolum brevem attenuatis, racemo terminali elongato stricto simplici, pedicellis brevibus unifloris fasciculatis, fasciculis oppositis pseudo-verticillatis, corolla tubulosa subinfundibuliformi limbo oblique subregulari, staminibus paululum exsertis sterilibus subulatis brevissimis.

Thyrsacanthus strictus. *Nees, in De Cand. Prodr. v.* 11. *p.* 324.

Thyrsacanthus Lemairianus. *Nees, l. c. p.* 729.

Eranthemum coccineum. *Lemaire,* "*in Flore des Serres. Juin,* 1847, *t.* 8."

Aphelandra longiscapa, Salpixantha coccinea, *et* Justicia longiracemosa, *Hort.*

Having received this really handsome stove plant from the continent, from different cultivators, under the garden-names above quoted, and these being given as synonyms to Nees ab Esenbeck's *T. Lemairianus*, we cannot doubt that it is that plant, of which the native country is said to be unknown. We are equally certain that it is the *T. strictus* of the learned Professor; because the authentic specimen for that plant is in our Herbarium, having been sent from Honduras by Mr. Armstrong; and the two are identical. We may observe, too, that Nees places his *T. Lemairianus* next to *T. tubæformis,* of which he observes "an

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forma var. *T. stricti*:" thus showing its affinity to the latter species; and he does not appear to have seen a specimen, but to have drawn up his specific character from Lemaire's figure. It flowers in February and March, and is highly ornamental.

DESCR. A half-shrubby *plant* of a strict habit, two and a half to three feet high, including the *raceme*, glabrous, branched below. *Leaves* opposite, a span and more long, oblong, much acuminated, below decurrent into a short footstalk: the *branches* elongate into a raceme, of which the rachis is minutely downy, a foot to a foot and a half long, four-sided. *Pedicels* in pseudo-whorls, short, subtended by one outer small, and several inner very minute, subulate bracteas, shorter than the short pedicels. *Calyx* quite destitute of bracteas, purplish-red. *Corolla* rich scarlet, tubular, approaching to funnel-shaped; *limb* of four, nearly equal, spreading segments, which are ovate, obtuse, the upper one bifid. *Stamens* exserted, oblong; sterile *filaments* minute, subulate. *Ovary* oblong-ovate. *Style* shorter than the tube of the corolla.

Fig. 1. Corolla laid open. 2. Anther. 3. Pistil:—*magnified.*

4,379.

Fitch del. et lith.

Reeve, Benham & Reeve, imp.

TAB. 4379.

CORYNOCARPUS LÆVIGATA.

Smooth-leaved Corynocarpus.

Nat. Ord. MYRSINACEÆ ?—PENTANDRIA MONOGYNIA.

Gen. Char. Calyx liber, pentaphyllus, foliolis subrotundis ciliatis concavis imbricatis deciduis. *Corollæ petala* 5, subrotunda, ciliata, calyce paulo majora imbricata concava. *Stamina* 5 e basi petalorum, cum iis alternantia; *filamenta* crasso-subulata: *antheræ* ovato-oblongæ, dorso medio affixæ, introrsæ. *Stamina* sterilia fertilibus alternantia, petaloidea, spathulata, laciniato-serrata, apice bifida. *Glandulæ* perigynæ ad basin staminum sterilium obcordatæ sessiles. *Discus perigynus* latiusculus stamina corollam calycemque gerens. *Ovarium* superum ovatum, uniloculare: *ovulum* solitarium. *Stylus* ovarii longitudine. *Stigma* capitatum, papillosum. "*Nux* turbinato-clavata, oblonga, monosperma."—Arbor *Novæ Zelandiæ*, Ardisiæ *facie, ramosa*; foliis *alternis petiolatis obovatis glaberrimis lævibus*. Panicula *terminalis thyrsoidea*, floribus *parvis albis globosis brevissime pedicellatis*.

CORYNOCARPUS *lævigata*.

CORYNOCARPUS lævigata. *Forst. Prodr. n.* 114. *Gen. Char. t.* 16. *A. Rich. Fl. Nov. Zel. p.* 365. *All. Cunn. in Tayl. Ann. Nat. Hist. v.* 4. *p.* 260. *Spreng. Syst. Veget. v.* 1. *p.* 781.

MERRETIA lucida. *Sol. MSS. in Bibl. Banks.*

A native of New Zealand, drawn from a specimen sent by the late Mrs. Sherbourne, from her collection at Hurst House, Lancashire, and the only one we have seen; so that in the absence of fruit, we can only speak, as Mr. Allan Cunningham and others have done, doubtfully, as to its place in the Natural System. The position of the seed alone would militate against its being one of the *Myrsinaceæ*, and there is a something in the structure of its flowers indicating an affinity very different from that family. Although the blossoms have little to recommend them, the plant itself "forms a tree," says Mr. Cunningham, "Karaka of the natives, upon which the eye of the traveller rests with pleasure, by reason of its rich dark glossy leaves and highly ornamental growth; and it furnishes a plum-like fruit, of which the drupaceous coat, when fully ripe of a sweetish taste, is eaten by the natives. The nut or kernel also, upon being deprived (by

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steaming and maceration in salt water) of the poisonous property it is said to possess, is held in considerable estimation by the New Zealanders, who collect and use it for food, in seasons of dearth. If eaten without this necessary preparation, the person becomes seized with severe spasmodic pains and convulsions; from which the sufferer, in some cases, does not recover, but has been observed to die in great agony in a few hours. The timber is not used for any other purpose than as fire-wood, being of short fibre and very soft." It is a green-house plant, and flowers in May.

DESCR. "A *tree*, forty feet and more in height," with rounded patent *branches*. *Leaves* alternate, petiolate, obovate, rather obtuse, entire, glabrous and very smooth. *Panicle* thyrsoid, terminal. *Flowers* numerous, small, nearly globose, each shortly pedicellate. *Calyx* of five imbricated, nearly orbiculate, ciliated, concave *sepals*. *Petals* five, suborbicular, a little longer than the calyx, concave, ciliated. *Stamens* five, alternating with five petaloid abortive ones, at the base of each of which is a large obcordate *gland*. All these parts now described are united by a perigynous *disk*. *Ovary* one. *Style* short. *Stigma* capitate, downy. *Ovule* one, suspended from the top of the cell.

Fig. 1. Flower. 2. Vertical section of ditto. 3. Perigynous disk, showing the insertion of the petals, stamens, and glands. 4. Stamen. 5. Ovary laid open :—*magnified*.

Fitch. del et lith

Reeve, Benham & Reeve imp.

Tab. 4380.

GESNERIA Libanensis.

Many-flowered Gesneria.

Nat. Ord. Gesneriaceæ.—Didynamia Angiospermia.

Gen. Char. (*Vide supra*, Tab. 4217.)

Gesneria *Libanensis*; humilis subsimplex, caule perbrevi fruticoso, foliis rosulatis approximatis obovato-lanceolatis glabris venoso-rugosis punctato-scabris obtusis grosse inæqualiter serratis, petiolis canaliculatis hirsutissimis, pedunculis axillaribus unifloris hirsutis petiolum æquantibus, calycis pilosi tubo turbinato 5-costato, lobis subfoliaceis ovatis acutis patentibus, corolla pilosa tubulosa medio inflata apice paululum connata ore obliquo, limbi lobis subæqualibus rotundatis brevibus, staminibus styloque inclusis, glandulis epigynis 5.

Gesneria Libanensis. "*Morren, Ann. de la Soc. d'Agricult. et de Bot. v.* 2. *p.* 361. *t.* 84." *Walpers, Repert. v.* 6. *p.* 737.

Rytidophyllum floribundum. "*Van Houtte, Flora du Gwchshr.* 2. *Heft.* 12. *t.* 6."

It is much to be regretted that neither Martius nor Decaisne has carried out his views of the genera of *Gesneriaceæ* in a sufficiently comprehensive manner. Recent discoveries in South America have brought to light a great number of species, of which many are new, others ill described, and all want a thorough investigation. The present plant is a native of Cuba, and was received at the Royal Gardens of Kew from Mr. Van Houtte, under the name of *Rytidophyllum floribundum*; but it neither coincides with that genus in character nor in habit. It appears, according to Walpers, who is our authority for the above synonyms, that it was previously described by Morren under the name here adopted; but it ill agrees with true *Gesneria*, rather with certain West Indian species in our Herbaria (*G. scabra*, Sw. and *G. humilis* and *acaulis*, Linn.), which are referred to *Conradia* by Martius and De Candolle, though probably without sufficient examination. No family deserves a more thorough revision than that to which our present plant belongs: the individuals of it

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are eminently beautiful, and the greater number well worth cultivation.

Descr. Fruticose. *Stem* a few inches high, simple or very slightly branched, clothed with spreading rosulate foliage chiefly in the upper part. *Leaves* three or four inches long, obovato-lanceolate, rather firm and rigid, somewhat bullate, reticulato-rugose, glabrous, but rough with minute points which turn white when dry, the margin very unequally serrated, the underside pale. *Petioles* short, channelled, almost shaggy with rufous hairs. *Peduncles* axillary, rather longer than the petioles, single-flowered, hairy, with long narrow linear bracteas at their base. *Calyx* hairy: the *tube* wholly adnate with the ovary, five-, or when more advanced, obscurely ten-angled, turbinate; the limb of five ovate, somewhat leafy, acute, spreading three-nerved segments. *Corolla* half as long as the leaves, tubular, swollen in the middle, hairy, bright red, the extremity a little decurved, the mouth oblique, *limb* of five small, spreading, nearly equal, rounded, spreading, ciliated lobes. *Stamens* as long as the tube. *Style* shorter, with five large three-toothed glands, coadunate at the base. *Stigma* small, two-lobed. *Capsule* globose, united with the persistent calyx, shortly two-valved. *Seeds* copious, scrobiform.

Fig. 1. Corolla laid open. 2 and 3. Anthers. 4. Calyx and pistil. 5. Ovary and epigynous gland. 6. Transverse section of an ovary:—*magnified.*

attended to; and I would particularly mention the Sarsaparilla *(Smilax Sarsaparilla)* a plant, so indifferent as to soil, so easy of cultivation, and so valuable as a remittance home, that too much care can scarcely be bestowed upon it: much waste land might be profitably cultivated with it, especially where labour is scarce, and the economy of it an object.

"Another plant that deserves to be noticed is the Cotton: any rupture of the amicable relations now existing between the United States and Great Britain, would at once cause a great demand for it in the British Colonies. The attention of many individuals has already been deservedly turned towards its cultivation; and there is no reason why a plant that flourishes so luxuriantly should not be one of general and profitable production. That variety, from the undyed wool of which the article commonly known as Nankeen is manufactured, has been introduced into Jamaica; and it will afford me much pleasure to distribute seeds to any person desirous of rearing it. The wild Cinnamon *(Canella alba)* and the St. Lucia Bark *(Exostemma Caribæum)*, articles in demand at home, and exported from other parts of the West Indies, are unheeded and but little known here, though frequently found growing about our doors, and commanding a remunerating price.

"Trusting that I shall not trespass too much on your time, I beg to direct your attention to one other subject,—our quick Fences. These must always be matter of interest to the agricultural population of this island; but though of vast importance they have been generally subject to much ill management in several ways, principally from the mode of treatment they are subjected to in training and pruning, and not unfrequently from the inapplicability of the species of plant to a peculiar locality. Hedges when young should be cut back to within a little of the root, and the plants left at regular distances from each other, a process which is sure to produce a growth of strong, healthy, upright, and lateral shoots; instead of which a young fence is cut to the height it is intended to remain, and lopped once a-year afterwards (instead of pruning), thereby causing a flow of sap to the extremities, which results in a growth of weak wood at the top, and bare and naked stems at the bottom. The logwood, orange, and lime have usually been the materials for fences here. In the East, the "*Gmelina Asiatica*," the "*Cæsalpinia sepiaria*," and the "*Sesbania Ægyptiaca*" are chiefly employed for that purpose, and as these are all introduced, it would be well to have their respective merits tested by comparisons with the logwood, &c. The former I have no doubt, is superior to any thing that has been yet tried.

"There now only remains to me the agreeable duty of recording my obligations to those who have in any way contributed to the welfare of the Garden under my care; and I can scarcely be too earnest in the expression of my feelings towards Sir Wm. Jackson Hooker, who, while directing the first Botanic Garden in the world, has not been unmindful of other establishments, of vastly inferior importance. To this gentleman I am indebted for the introduction of the Mangostan, a plant which money could not procure, and for other productions both useful and beautiful, calculated to add greatly to the comfort and pleasure of the inhabitants of this island.

"My thanks are likewise due to the Rev. Mr. Wharton, of whose choice collection I have freely shared; and also to Mr. Purdie, the Curator of the Botanic Garden at Trinidad, from whom I have received seeds of many valuable plants, hitherto unknown in Jamaica. That old and well-regulated establishment promises to be of the utmost importance, by contributing many plants altogether unknown here, and re-establishing others which had been lost through the system of change in management to which this Garden had unfortunately been subject, whereby its utility was in a great measure lessened to the country."

NATHANIEL WILSON.

Botanical extracts from Mr. Low's HISTORY OF BORNEO.

(*Continued from p.* 21.)

Botanical Articles of *Export* from Borneo.

Having already described the vegetable products of Borneo which are chiefly used in the country, we proceed to notice such as are principally collected for exportation. First comes the *Camphor*, called by the natives, and in commerce, *Kapur Barus*, or *Barus Camphor*, and so termed to distinguish it from the produce of the *Laurus Camphora* or Japan Camphor. The name is derived from the place, Barus in Sumatra, where it is principally obtained and whence it was perhaps first exported. The true *Dryobalanops Camphora*, which affords the valuable drug, has hitherto been only found in Borneo and Sumatra: and even on these islands it is confined to the northern parts. Mr. Marsden says the tree is very common in Sumatra, in the country of the Battas, but does not grow south of the Line. I once detected some trees of *Dryobalanops* in Sarãwak, where they were, perhaps, common, but have been destroyed in extracting the camphor; a conjecture strengthened by the fact that one of these trees on being felled displayed a notch in the trunk; and it is customary thus to examine whether they contain camphor. On Labuhan, the Camphor-tree grows abundantly and is one of the noblest ornaments of the jungle: it has a fine straight stem, from which the bark separates in large flakes; the foliage is very dense, forming a well-shaped head, and the trunk is often ninety feet high, before giving off a single branch. It is alleged that the younger and smaller trees produce as much camphor as the old and larger individuals. This substance is found in a concrete state in the crevices of the wood, and it can unfortunately only be extracted by felling the tree, which is afterwards cut into blocks and split with the wedges, when the camphor, which is white and transparent, can be easily removed. An essential oil also resides in the hollows of the wood and the natives crystallize it artificially, but the drug so obtained is not equally prized with that which is found naturally crystallized. The Borneans, though they occasionally use camphor medicinally, do not esteem it so much as the Chinese. The price obtained in China for the produce of the *Dryobalanops Camphora*, or *Kapur Barus*, exceeds that of Japan by twenty to one: but it is alleged that superstition has much to do with this disproportion and that though the trees are dissimilar, the chemical properties of the Bornean and Japan Camphor are nearly the same.

Several species of *Dipterocarpus* produce a nut from which a fatty oil is expressed; and the substance in question has been extensively vended in England under the name of *Vegetable Tallow* and *Vegetable Wax*. The tree most valued for yielding it, grows on the banks of the Sarăwak river: it is about forty feet high, with large foliage, and branches drooping towards the water; its appearance is beautiful and it bears fruit in great profusion and as large as a Wallnut, with two long wings to the seed. The natives collect and press the nuts, which yield a large quantity of oil, which assumes the appearance and consistency of sperm. It is at present only used for cooking; but when the demand for it in Europe becomes better known in Borneo, the people will manufacture it more extensively. It is considered in England to surpass even Olive oil for lubricating machinery, and it has been made into excellent candles at Manilla. The quick growth of the tree and the profusion of fruit which it bears, are strong recommendations, and will render its culture a profitable speculation. The same species of *Dryobalanops* has been found in Java and Sumatra.

The *Pangium edule* affords an oil which is eaten by the Dyaks, who cultivate the tree, which does not grow wild in Borneo. Its large fruit contains many seeds, imbedded in deleterious pulp.

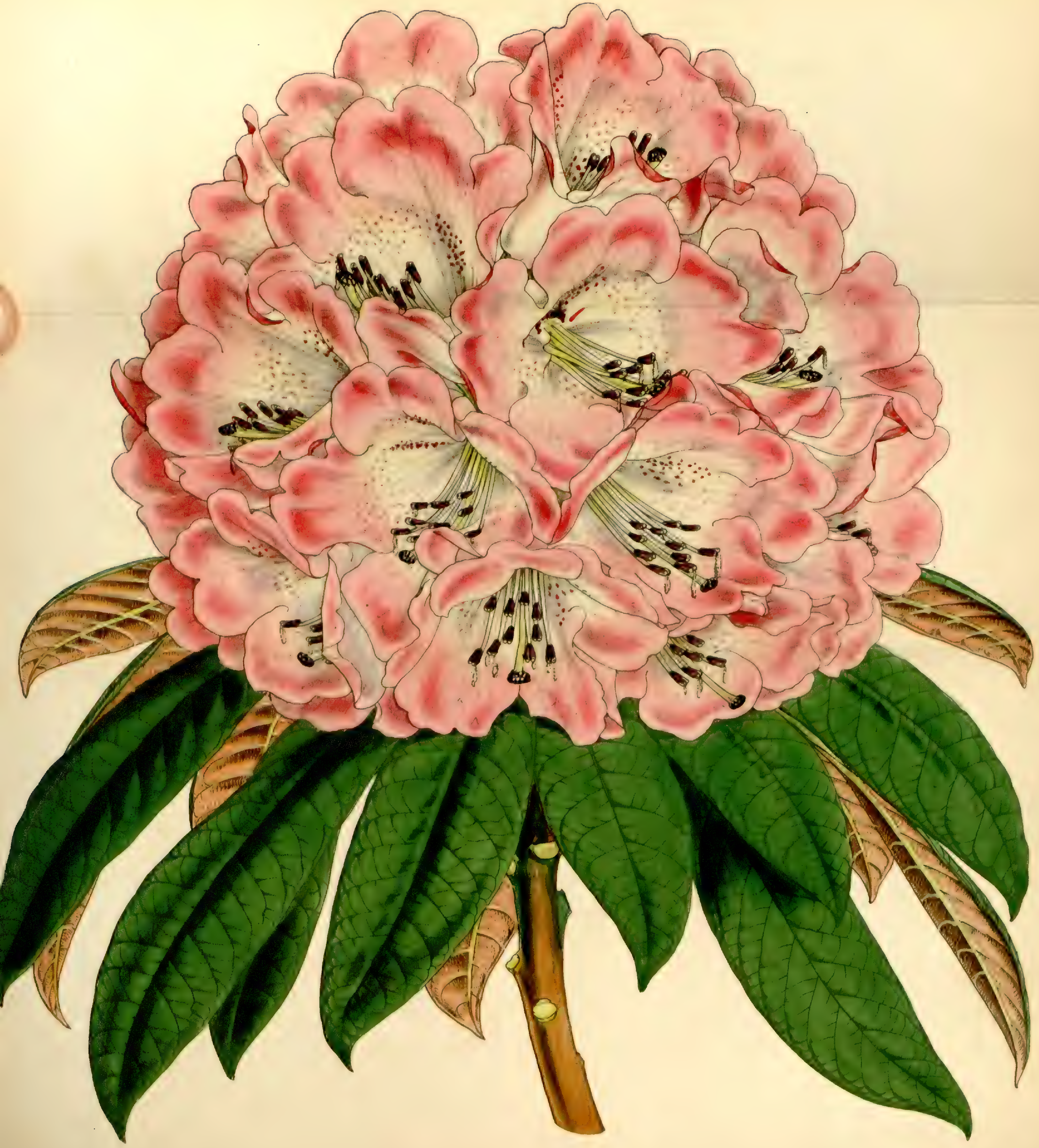
Wood oil is obtained from a tree of the order *Myrtaceæ*. To procure it, a large hole is cut in the trunk, and fire is put in, when the oil is attracted by the heat. The natives mix it with Dammar, for paying the seams of their boats, and substitute it for linseed oil in mingling paints; it is considered very effectual in preserving wood from the effects of the weather.

Many other esculent oils of fine quality are obtained from the seeds of different forest-trees, as the *Niato*, or *Gutta Percha*, of the Malay Peninsula; but the people, having an extensive choice, take little trouble to procure them, though it cannot be doubted they would repay the merchant or traveller who should institute researches on the subject of their respective properties. The *Gutta Percha* tree is said to be found in all the forests of Malacca, Borneo, and Singapore, and the adjacent islands: fortunate it is that such is the case, for the quantity is already much diminished. The natives have no other mode of procuring the gum than by felling the trees and ringing the bark at distances of 12 to 18 inches, when a cocoa-nut shell receives the flowing sap from each incision. It is customary to inspissate the sap by boiling it, but this process is not necessary: in a short time it consolidates and assumes the same appearance of itself.

The quantity of Gutta obtained from each tree is from five to twenty catties: the catty being equivalent to a pound and three quarters English weight. Its great and most valuable property is that of becoming soft and plastic when immersed in water above the temperature 150° Fahr. It may then be moulded into any required form, which it retains on cooling. The Malays manufacture it into whips, baskets, basins and jugs, shoes, traces, and vessels of various kinds.

Another substance, resembling caoutchouc in its properties, may be obtained in large quantities in Borneo and many other islands, and on the Peninsula: it is the produce of a climbing *Urceola*, whose trunk grows to the size of a man's body. The bark, which is soft and thick with a very rough appearance, emits on being cut an immense flow of sap, and the tree is uninjured by the process. There are three kinds of it in Borneo and all of them are known by the name of *Jintarvan*; the caoutchouc which they yield has been proved, by analysis, equal to and like that procured from the *Ficus elastica*. The fruit, which is large and of a fine apricot colour, contains twelve or more seeds,

4381.



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Reeve Benham & Reeve imp.

TAB. 4381.

RHODODENDRON NILAGIRICUM.

Neelgherry Rhododendron.

Nat. Ord. ERICINEÆ.—DECANDRIA MONOGYNIA.

Gen. Char. (*Vide supra,* TAB. 4336.)

RHODODENDRON *Nilagiricum*; arboreum, foliis oblongo-lanceolatis acutis coriaceis reticulatim venosis margine revolutis supra opacis subtus dense laxe ferrugineo-tomentosis, racemo terminali capitato amplo, calyce parvo brevissime 5-lobo, corolla campanulata segmentis undulatis rotundatis bilobis, filamentis declinatis inæqualibus, ovario hirsuto 10-loculari.

RHODODENDRON Nilagiricum. "*Zenker, Plant. Nilag. cum Ic.*" *Ann. Sc. Nat. Bot. 2nd Series, v.* 6. *p.* 150.

In no instance whatever have I seen, either in gardens or in native specimens, the true *Rhododendron arboreum* having the leaves covered beneath with lax, dark, rusty tomentum; nor are they so described by Sir James Smith,* the original authority for the plant. His term is very expressive, "clothed with *white dense* downiness beneath, so compact, indeed, that it gives them quite a silvery aspect;" and "folia subtus argenteo-pannosa" would perhaps describe the appearance better than any other words. Such is exactly the case with original specimens of Sir James Smith in my Herbarium: such are those of Dr. Wallich from Nepal, collected in 1821; and such are our friend Dr. Thomas Thomson's specimens, gathered at Nynee Tal, Kamaon. The upper surface of the leaves, too, is smooth and somewhat glossy, indistinctly impressed with reticulations.

In the spring of the present year I had the pleasure of receiving, from Messrs. Lucombe, Pince, and Co., the fine specimen of *Rhododendron* here figured, the offspring of "seed sent from Nepal." So different are the leaves from those of *R. arboreum,* that I certainly considered it distinct; and, on com-

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* Exotic Botany, tab. 6. See also an excellent figure of *R. arboreum,* in Bot. Reg. t. 890; where the author describes the underside of the leaves as "*argenteo-lepidota,*" a character totally at variance with our plant.

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paring it with specimens received from the Neelgherry hills ("*Rhododendron* sp." Herb. Wight, propr. sine numero, and from Sir Frederick Adam), I have no hesitation in pronouncing it to be the same, and in adopting the name given to it by Zenker in the work above quoted. It should be observed that Drs. Wight and Arnott, in their distributed specimens, refer to "*R. nobile*, Wall. Cat. n. 1521 *c*," which is the identical Neelgherry plant. For my own part, with a Herbarium pretty rich in arborescent *Rhododendra*, I have seen nothing corresponding to this, except from the Neelgherries. But if, as there seems no reason to doubt, the seeds of the one here given were derived from Northern India (a region very remote from the Neelgherry chain), then it becomes a question whether Dr. Wallich's "*R. arboreum*," figured in Plantæ Asiaticæ Rariores, (vol. ii. p. 23. p. 123)," var. foliis subtus ferrugineo-tomentosis, floribus albis," may not be a state of this; though the figure does not represent the leaves so rufous and so tomentose as in our plant; nor do I think that the learned author intends to describe the kind of tomentum seen on *R. Nilagiricum*; for he speaks of the difference of his plant from *arboreum* consisting only in the more or less brown *colour* of the leaves of the lower surface. In regard to the hue of the flowers I may mention that it varies, as is seen by my dried Neelgherry specimens, from deep crimson to rose colour, which latter is the state of our individual.

It will be observed that we are speaking of a plant derived directly from Indian seeds, and not of one that has been hybridized in our gardens, which is so much done, that we stand a great chance of losing the original types in our collections.

R. Nilagiricum is a most lovely shrub, and, what adds to its value, perfectly hardy, having endured several winters in the open ground in Messrs. Lucombe and Pince's Nursery. It flowered in April, 1848, in the said Nursery, and we believe it is *the first* of the species that has blossomed in this country.

We have the pleasure of being able to announce that another and most distinct arborescent *Rhododendron*, of great beauty, with dark red or puce-coloured heads of flowers, large, coriaceous, glossy foliage, and with the young branches, peduncles, and fruit clothed with long, stiff, glandular hairs or bristles, has been raised from Nepal seeds, by Messrs. Francis and James Dickson, of the Upton Nurseries, Chester. It is the *Rhododendron barbatum* of Wallich, hitherto unknown, except by the specimens distributed by that liberal botanist from the herbarium. We greatly regret that we had not the opportunity of figuring this, when it blossomed there, in the early part of May; for, with the splendid colour of the true *R. arboreum*, it unites the advantage of being perfectly hardy, the original plant having stood out of doors in the climate of Cheshire for the last seven years, without protection. It has also flowered at the Marquis of Westminster's, and we are informed that Messrs. Dickson have now plants on sale, at their Upton Nurseries, Chester.

4382.

Fitch del. et lith.

Reeve Benham & Reeve imp

TAB. 4382.

VRIESIA SPECIOSA.

Showy Vriesia.

Nat. Ord. BROMELIACEÆ.—HEXANDRIA MONOGYNIA.

Gen. Char. Sepala tria, convoluta, æqualia, petalis apice revolutis (an semper?) breviora. *Squamæ* cuique petalo 2, semiadnatæ indivisæ. *Stamina* exserta, 3 libera, petalorum basi inserta, 3 inter petala inserta iisque basi connata: *antheræ* lineares, planæ, posticæ. *Ovarium* semi-inferum conicum; *stigma* 3-lobum, lobis convolutis et sinuatis, villosis.—Folia *plana (seu canaliculata), erecta.* Flores *distichi, bracteis magnis canaliculatis coloratis. Lindl.*

VRIESIA *speciosa*; foliis lato-oblongis obtusis cum mucrone canaliculatis integerrimis glabris nudis transverse nigro-vittatis, scapo squamoso nigro-maculato, spica elongata coccinea, bracteis coloratis lanceolatis acuminatis arcte imbricatis conduplicato-carinatis unifloris, floris albis bracteis superantibus.

TILLANDSIA splendens. *Hort. Paris.*

I have little hesitation in referring this beautiful plant to Dr. Lindley's genus *Vriesia*, established on the *Tillandsia psittacina*, Hook., notwithstanding some slight discrepancies in the character. The author refers it to *Tillandsia heliconioides*, Kunth; and I think it the *T. setacea*, Sw. (Bot. Mag. t. 3275). All have flowers resembling *Pitcairnia*, but a very different inflorescence, firm, coloured, distichous bracteas, which constitute the great ornament of the plant. The leaves are here also handsome, with black transverse bands. We owe the possession of this in the stoves of Kew to Mr. Newman of the Jardin des Plantes at Paris, from whom we received it under the garden name of *Tillandsia splendens.*

DESCR. *Leaves* radical, a span and more long, lorate-oblong, canaliculate, or almost semicylindrical, very concave at the base, the margin entire, the apex reflexed, blunt, but tipped with a mucro, the margin entire, colour dark green with black transverse bands. *Scape* arising from the centre of the leaves, a foot and a half long (including the spike), terete, scaly, green, with black spots: this is terminated by a compact, lanceolate, bright red, glossy *spike* of numerous lanceolate, acuminate, complicato-compressed, carinated, closely imbricated *bracts*, each including a single white *flower*. *Flower* longer than the bract, cylindrical, curved, soon withering. *Calyx* of three oblong, scarious, obtuse, erect sepals. *Corolla* of three linear-spathulate *petals*, with two scales within at the base. *Stamens* six, rather longer than the petals. *Ovary* almost, if not quite, superior. *Style* filiform, longer than the stamen.

Fig. 1. Flower:—*nat. size.* 2. Petal. 3. Pistil:—*magnified.*

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Reeve Benham & Reeve imp.

TAB. 4383.

TETRAZYGIA ELÆAGNOIDES.

Elæagnus-like Tetrazygia.

Nat. Ord. MELASTOMACEÆ.—DECANDRIA MONOGYNIA.

Gen. Char. Calycis tubus globosus urceolatusve, *limbus* ultra ovarium productus, persistens, breve 4-(5-)dentatus. *Pet.* 4 (5) obovata. *Stam.* 4–8 (10) æqualia. *Antheræ* lineares basi obtusæ apice 1-porosæ. *Ovarium* glabrum. *Stylus* filiformis. *Stigma* punctiforme. *Capsula* baccata 4-(5-)locularis. *Semina* innumera cuneato-angulata, nitida, hilo lineari.—Frutices *Caribæi.* Rami petioli foliaque *subtus albida furfuracea aut lepidota.* Folia *ovalia aut oblonga discolora* 3-*nervia petiolata.* Cyma *trichotoma terminalis.* Flores *albi, ebracteolati. DC.* (Sect. Octo-Decastemon.)

TETRAZYGIA *elæagnoides*; ramis teretiusculis, petiolis foliisque subtus pube lepidota subpulverulenta adpressa albido-rufescentibus, foliis oblongo-ovatis acuminatis 3-nerviis subcoriaceis supra glabris, paniculo terminali, floribus 3–5-meris, calycis urceolati limbo obsolete 4–5-dentato.

TETRAZYGIA elæagnoides. *Sw. Ind. Occ. v.* 2. *p.* 815. *Vahl, Ic. Pl. Am. v.* 2. *p.* 28. *Rich. in Bonpl. Melast. t.* 13*? De Cand. Prodr. v.* 3. *p.* 172. *Spreng. Syst. Veget. v.* 2. *p.* 304.

A West Indian plant, as are all the species of the genus. Our specimen was obligingly communicated from Syon House by Her Grace the Dowager Duchess of Northumberland, having been raised from Jamaica seeds. We have fine native specimens from Jamaica and also from Bahamas (with narrower leaves and more obtuse at the base). It is also found in the Danish West Indian islands. Had we only Swartz's original description to appeal to, I should have no doubt of our Jamaica plant being the same with that of Swartz, except that the flowers are pentamerous, instead of tetramerous; but the figures quoted by De Candolle, do represent the leaves much smaller and more attenuated or acute at the base than any I have seen. In other respects they agree. It flowered in March.

DESCR. A moderately sized branching *shrub*: with the *branches* subterete, and they and the *petioles* and *peduncles, calyx* and *underside of the leaf*, silvery and whitish, or pale brownish-green, from numerous minute, dense, furfuraceous

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scales. *Leaves* on rather short *petioles*, between oblong and ovate, sharply acuminated, coriaceous, 3-nerved, the nerves connected by many transverse veins; the margin entire, the upper side dark green, glabrous. *Panicle* terminal, with many rather large white *flowers*. *Calyx* urceolate, slightly tuberculate, the *limb* cup-shaped, in our plant five short teeth or angles. *Petals* five, obovate, acute. *Stamens* ten, curved, inclined to one side. *Filaments* subulate. *Anther* yellow, broad, subulate, compressed, about as long as the filaments. *Ovary* five-celled. *Style* shorter than the *stamens*, flexuous. *Stigma* obtuse.

Fig. 1. Stamen. 2. Calyx and pistil:—*magnified.*

4384.

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TAB. 4384.

ACACIA ARGYROPHYLLA.

Silver-leaved Acacia.

Nat. Ord. LEGUMINOSÆ.—POLYGAMIA POLYANDRIA.

Gen. Char. (*Vide supra*, TAB. 4306.)

ACACIA *argyrophylla*; ramis angulatis, foliis obovato-oblongis obtusis obscure penninerviis pulcherrime argenteo-sericeis hinc margine medium versus uniglandulosis, capitulis multifloris solitariis v. racemosis, calycis laciniis clavatis corollisque ciliatis.

This species is one of the many novelties sent by Mr. Drummond from the Swan River Settlement, and is no less beautiful in the foliage (phyllodia) than in its copious large heads of deep yellow flowers. The phyllodia are like the leaves of *Podalyria sericea*, everywhere clothed with a glossy silky cobweb, in the young leaves partaking of a yellow tint. Already our shrub is five feet high, very much branched, of graceful and compact growth, with phyllodia more like leaves than those of almost any other species. It flowers in April.

DESCR. A tall *shrub*, with numerous erecto-patent *branches*. The latter are angled, the young ones silky, yellow-green. *Phyllodia* from one inch and a half to two inches and a half or more long, obovato-oblong, very obtuse, pointless, and opening below into a very short *footstalk*, clothed on both sides with a compact, glossy, silky, and silvery down, the younger leaves richly tinged with yellow; the margin is a little thickened, and, about the middle of the upper edge, is a gland. *Stipules* obsolete. *Heads of flowers* rather large, globose, deep yellow, solitary or racemed; the *racemes* usually shorter than the leaves. *Calyx* of five clavate, ciliated segments. *Corolla*, with the petals, oblong, ciliated. *Stamens* numerous. *Style* about the length of the filaments.

Fig. 1. Flower:—*magnified.*

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Fitch. del et lith.

Reeve, Benham & Reeve

TAB. 4385.

TROPÆOLUM SMITHII.

Sir James Smith's Nasturtium.

Nat. Ord. TROPÆOLEÆ.—OCTANDRIA MONOGYNIA.

Gen. Char. (Vide supra, TAB. 4337.)

TROPÆOLUM *Smithii*; foliis peltinerviis quinquelobo-palmatis, segmentis acutis mucronatis nunc incisis, stipulis profunde laciniatis, pedunculo elongato cirrhato, petalis cuneatis duobus superioribus minoribus sessilibus 3 inferioribus unguiculatis omnibus laciniato-ciliatis, calcare subulato rectiusculo calyce longiore.

TROPÆOLUM Smithii. *De Cand. Prodr. v.* 1. *p.* 684.

TROPÆOLUM peregrinum. *Linn. Sp. Pl. ed.* 2. *p.* 668. *Spreng. Syst. Veget. v.* 2. *p.* 226. *(fide Sm. non L. Sp. Pl. ed.* 2.*) excl. Syn. Feuill. Lamarck, Ill. t.* 277. *f.* 3. *Sm. in Rees. Cycl. n.* 4. *(non Jacq.)*

Another and very distinct and elegant species of *Tropæolum*, for the introduction of which to our gardens we are indebted to Messrs. Veitch and Son, and to their indefatigable collector, William Lobb. It is a native of high mountains in Columbia, whence we have copious native specimens in our Herbarium, not only sent by Mr. Lobb, but by Colonel Hall, who gives the elevation at Lloa, 9000 feet above the level of the sea. The learned De Candolle has done well to discard the Linnæan name of *peregrinum*, which properly belongs to the *T. aduncum* of Smith (the "Canary Bird Flower" of cottage gardens). For, whatever plant Linnæus may have intended under that name in after time, it is certain that he established it, in the first instance, on the authority of Feuillée's figure (vol. ii. p. 736. t. 42) only, which he quotes, and adds, "Hab. in Peru; nondum mihi visum in Europa:"—and that figure is Smith's and De Candolle's *aduncum*. Treated as the *Tropæolum majus* and *minus*, there is every reason to believe that it will prove as hardy. It flowers through the summer months.

DESCR. Annual? *Root* not tuberous. Whole plant glabrous. *Stems* twining, succulent. *Leaves* peltate, on long, slender,

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twisted, cirrhiform *petioles*, palmately five-lobed, lobes oblong or lanceolate, acute and mucronate, in native specimens not unfrequently incised here and there. *Stipules* small, but fringed with long ciliæ. *Peduncles* axillary, solitary, filiform, twisted, longer than the petioles, one-flowered. *Calyx* coloured, dull brick red, terminating behind in a long, nearly straight, subulate *spur*, green at the tip: segments of the calyx ovate, acuminate, shorter than the petals. *Petals* cuneate, orange, all toothed and fringed, the fringe and veins red: the two upper petals small and sessile; three lower the largest and unguiculate. *Stamens* and *style* shorter than the petals.

Fig. 1. Upper petal. 2. Lower one:—*magnified.*

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W. Fitch del. et lith.

Reeve, Benham & Reeve imp.

Tab. 4386.

CANTUA PYRIFOLIA.

Pear-leaved Cantua.

Nat. Ord. Polemoniaceæ.—Pentandria Monogynia.

Gen. Char. Calyx urceolato- vel tubuloso-campanulatus 5-dentatus v. 3–5-fidus. *Cor.* tubulosa, limbi subpatentis laciniis subæqualibus obovatis. *Stamina* prope basin tubi inserta, e tubo exserta. *Discus* brevis, carnosus. *Ovarii loculi* multiovulati. *Capsula* coriacea, trivalvis. *Semina* biseriatim adscendentia, imbricata, compressa, in alam expansa.—Frutices v. arbores *Peruvianæ.* Folia *alterna, crassiuscula, integerrima v. sinuato-dentata.* Flores *speciosi ad apices ramorum thyrsoideo-corymbosi, rarius in axillis superioribus subsolitarii. DC.*

Cantua *pyrifolia*; foliis ellipticis obovatisve petiolatis acutis pubescenti-pilosis (nunc glabris) integerrimis v. grosse sinuato-dentatis dentibus acutis corymbis ramosis, floribus erectis incurvis, calyce bilabiato, labiis 2–3-dentatis, staminibus corollam duplo superantibus.

Cantua pyrifolia. *Juss. Ann. Mus. v.* 3. *p.* 117. *t.* 7. *Lam. Illustr. t.* 106. *f.* 1. *De Cand. Prodr. v.* 9. *p.* 320.

Cantua Loxensis. *Willd. in Schult. Syst. Veget. v.* 4. *p.* 369.

Cantua flexuosa. *Pers. Syn. v.* 1. *p.* 187.

Periphragmos flexuosus. *Ruiz et Pav. Fl. Per. v.* 2. *p.* 17. *t.* 131.

Of all the *Polemoniaceæ,* and many of them it must be acknowledged are very handsome, some species of the present genus, *Cantua,* are pre-eminently beautiful. We have now the pleasure of announcing a species reared in this country, for the first time, by Messrs. Veitch and Sons, at their Nursery, Exeter, from seeds sent by their collector, Mr. William Lobb, from Peru. This is, however, by no means the most showy of the *Cantuas. C. quercifolia* has pure white flowers, nestled among leaves, as large as those of our oaks; and the *C. buxifolia* has deep rose-coloured blossoms, full four inches long. *C. pyrifolia* is, however, liable to vary: some of the specimens gathered by Mathews, as observed by De Candolle, have narrower flowers; and the native specimens have more generally entire leaves, and somewhat more like those of a pear, than the specimen here figured. It flowered in March, 1848.

July 1st, 1848.

Descr. A branching *shrub*, with scattered, shortly petioled *leaves* varying much in size and outline, from one inch to (occasionally) three and four inches in length, elliptic or obovate, acute, scarcely coriaceous, entire, or sinuato-dentate, the teeth acute, glabrous, or with scattered *hairs*, so as to be indistinctly downy. In general, the leaves nearest the inflorescence are the smallest and glabrous. *Corymb* terminal, compound. *Flowers* rather numerous, compact. *Pedicels* half an inch or more long. *Calyx* cylindrical, ovate, green, tinged with brown, generally two-lipped: one lip has two, the other three, ciliated teeth. *Corolla* funnel-shaped, curved, yellowish-white or dark cream-coloured: *tube* longer than the calyx: *limb* nearly erect, of five broadly oval, or obovate segments. *Stamens* nearly twice as long as the corolla. *Filaments* curved. *Anthers* oblong, yellow. *Germen* ovate, on a large fleshy disk, three-celled. *Style* rather longer than the stamen. *Stigma* trifid.

Fig. 1. Calyx and pistil. 2. Ovary. 3. Section of ditto:—*magnified.*

enveloped in a rich reddish pulp, which is very grateful to the palate of a European.

Many other Bornean trees afford a sap, which probably possesses similar properties to the *Gutta Percha*. But till a less wasteful mode of procuring these substances is devised than the felling of the trees, it were no boon to the island to create a demand for them.

The celebrated Upas, *Antiaris Toxicaria*, is found near Sarãwak, but it is not common. One fine specimen, which Mr. Low examined, grew to about sixty feet high. Its bark is white, and the stem is propped, as it were, below, with those processes resembling buttresses, which are common in the trees of tropical jungles. The poisonous juice exudes freely, when the bark is tapped; and the natives hold the *Upas* in much superstitious terror, though no authentic particulars exist of its injurious properties, unless when introduced into the circulation of the blood, when it seems undeniably among the most active of vegetable poisons. The tree is called *Bina* by the Borneans: *Upas* being a name they give to the sap itself, and to all vegetable poisons.

Dammar is a resinous gum, afforded by many trees, differing from one another and from the *Dammara orientalis* of "Marsden's Sumatra." This substance is applied to various purposes, caulking the seams of boats, and (when contained in Bamboos) for making torches: it gives a flaring and smoky light, and is chiefly used by the lowest classes.

A wild kind of *Cinnamon* grows in Borneo, which considerably resembles the true Cinnamon of Ceylon. It is not collected by the natives.

Cotton is raised by the Dyaks for making their cloths, and a sample of it, sent home to Liverpool, was pronounced of excellent quality. It is likely that, in process of time, its culture will be advantageously pursued, from the facility of exportation to China.

Pepper has long been exported in large quantities from several Bornean ports, especially Bruni; but, during the disturbances at the latter place, the trade has dwindled away, owing to the expulsion of the Chinese, who to the number, it is said, of 30,000, employed themselves exclusively in rearing the spice.

It is a curious fact, observed by all writers on the productions of the East, that Pepper is universally esteemed, except by the people of the countries where it is grown. This remark holds good in Borneo, where its use in cookery is reprobated, and the Malays prefer a small kind of capsicum. In the beginning of this century, the district of Banjumasin alone, on the south coast of Borneo, was capable of producing 1,500 tons of this spice.

Coffee has been tried in the gardens of Europeans with great success: the berry is fine and well flavoured. The hills on the mainland, opposite Labuhan, are well adapted for its culture; for there, as in Ceylon, the grower would be spared the trouble and cost of raising trees among the plantations, to shade the Coffee bushes from the sun, a precaution which is found requisite in Java. In Ceylon, an altitude of between 3,000 and 4,000 feet is the best locality for the Coffee estates; the fruit produced at that height is particularly well tasted and abundant.

Gambier (*Uncaria*) is not cultivated in Borneo, though it is occasionally seen wild: that used by the Malays for chewing with their *Siri*, is imported from Singapore, where its growth is said to exhaust the soil to a degree which it takes many years to recover.

Tobacco is reared in small quantities; but the people are unskilful in preparing it. If a good sort were procured, and the proper mode of manufacturing it were known, "the Virginian weed" might become as profitable to the Borneans as it is to their neighbours of the Philippines and Java; and the Dyaks would be found very willing to rear a plant with whose use they are acquainted.

Besides the above imperfectly enumerated vegetable productions, many others promise to be valuable. *Spices* of several kinds would probably thrive; *Vanilla*, for instance, which fetches a high price and is of easy culture. The *Cocoa Tree* of Manilla (*Theobroma Cacao*) has been tested and found to yield fruit of admirable quality. We have already spoken of *Cotton*. The *Musa textilis*, which affords the fine Manilla cordage (a kind of *Plantain*), would also thrive. *Ginger* grows well in all the native gardens, and *Turmeric* abounds in a wild state.

Many kinds of oil might be produced in perfection: in short, there is every reason to believe that most of the precious Indian and Tropical products would well repay the Bornean grower. And now that the British settlers in this island will be acknowledged and protected by our Government at home, the spirit of national enterprise will shortly bring to light the immense vegetable resources of this privileged country.

Many and valuable kinds of timber are produced by the magnificent forests of Borneo. Their botanical characters are little known, and it would therefore be useless to enumerate the native names, such as *Balean*, *Bintangur*, *Mungris*, &c., by which they are designated, and which would convey no single idea to a scientific mind. Some are useful for ship-building: others have a wonderful faculty of resisting the influence of water, the atmosphere, and even the destructive White Ants; while others again produce large quantities of Vegetable Tallow. Charcoal, pot-ash, and pearl-ashes are yielded by burning the timber of others. *Ebony* grows in many places, and the *rungas* is a handsome red wood, capable of receiving a fine polish, and much prized at Singapore for the purpose of making ornamental furniture. Generally speaking, however, there are not many sorts of ornamental wood in the island. Several scented kinds are known, though few of them are collected; and those which the inhabitants do procure, they have not yet learned to turn to profit by exporting them. The *Sandal-wood,* though it grows on Timor, has not, at present, been observed in Borneo.

Lignum Aloes, called *Garu* by the aborigines, is sent to Arabia and China, where it is purchased for making incense: it seems to be caused by the disease of particular trees; for this scented and resinous part of the trunk is only procurable after the tree has been cut down and is decayed.

Dye-stuffs and Tannin are the produce of many barks and fruits in these Isles of the Indian Ocean. They are, however, only used for home-consumption.

The Flowers of Borneo.

It has been said, and with much truth, that no country in the world produces such ravishing perfumes as the Isles of the Malayan Archipelago. The flowers of Borneo, in particular, are as lovely and sweet-scented as her forests are extensive and stately. The odours of *Melur* (a species of *Jasmine*), *Champaka* (a *Michelia*), and *Kananga* (*Uvaria*) are everywhere known and prized. The woods also abound in shrubs and flowers, which delight the eye and attract the botanist's curiosity by their rich hues and peculiar structure. As in most tropical countries, the *Orchideous Tribes* are numerous and lovely; and, especially on the open banks, where they enjoy their chief requisites of sun and moisture, these charming parasites may be seen entwining with their short-lived beauty the otherwise unsightly and naked trunks of the decaying trees.

The genus *Cælogyne* has the advantage of great fragrance besides the delicacy of its white and orange flowers; and several species of *Vanda* abound, equalling those of the continent of

India in beauty. One kind, which produces remarkably large blossoms, and which has been successfully introduced into England, has been named by Dr. Lindley, *V. Lowei*, after its fortunate discoverer.

Again, one kind of *Cypripedium*, or *Lady's Slipper*, which grows in Borneo, excels all those previously known; and while the genus *Dendrobium*, which is the pride of India, presents only small-flowered species in Borneo, the genus *Æria* is rich in varied and eminently beautiful kinds. *Cirrhopetalon*, *Bolbophyllum*, and others of the more minute *Orchideæ* abound, and are highly curious, delicate, and beautiful, compensating, by their interesting forms, for the want of gaudy colours and large size.

To pass from Orchideous plants, of which the culture is now so much favoured in England, we find the same localities, namely, river-banks and the dense underwood of the jungles, exhibiting many beautiful species of *Ixora* and *Pavetta*. The former bears large bunches of flowers, which vary into all the intermediate shades, from pale orange to crimson; while the latter presents tufts of delicate snow-white blossoms. Other *Rubiaceæ* abound, and are among the most fragrant and beautiful of the wild plants of Borneo.

Perhaps no plants are more gorgeous than the different kinds of *Rhododendron*, one in particular, which Mr. Lowe has named after Rajah Brooke. Its large heads of flowers are produced in abundance all the year round, and excel in size those of any known species: they frequently consist of eighteen flowers, which are of all possible hues, from a pale and rich yellow to reddish salmon-colour; when the sun shines upon them, these blossoms sparkle with the brilliancy of gold dust. Three other sorts have a fine inflorescence, one crimson, another red, and the third of a rich tint between these colours. Four species of *Clerodendron* adorn the banks of the Sarāwak river: two of them, which are fragrant, bear white flowers, another is scarlet, and another crimson. The latter is the handsomest: it forms a shrub, ten feet high, each branch tipped with a large loose spike of rich crimson blossoms; the head of flowers is often three feet from the foliage, forming, with the equally crimson bracts and stems, a magnificent pyramid of bloom, each blossom relieved by its white centre and protruding stamens; and the foliage is likewise ornamental, being large, dense, and heart-shaped. This *Clerodendron*, which now grows well in England, has been named after Captain Béthune, R.N., who brought it and several other fine plants from Borneo, where its

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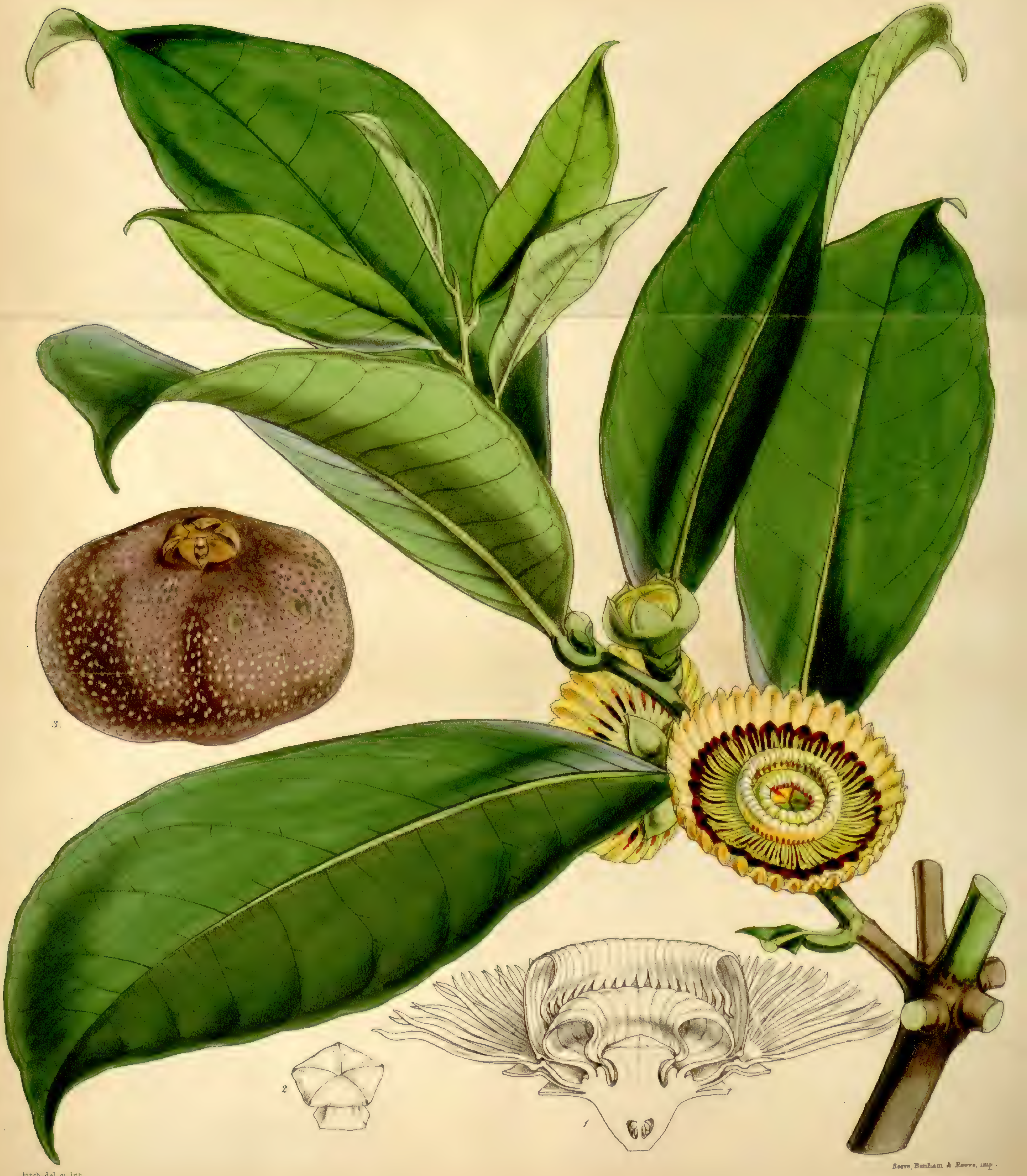

Fitch, del et lith

Reeve, Benham & Reeve, imp.

TAB. 4387.

NAPOLEONA IMPERIALIS.

Imperial Napoleona.

Nat. Ord. BALVISIEÆ, *Br.*—NAPOLEONEÆ, *Endl.*—MONADELPHIA DECANDRIA.

Gen. Char. Calyx adhærens, coriaceus, 5-fidus, æstivatione valvatus. *Corolla* e verticillis tribus monopetalis constans, quorum exterior maximus, concavo-subhemisphæricus multiplicatus multidentatus, *intermedius* corona (ut in *Passiflora*) profunde usque ad basin in lacinias filiformes patentes fissus, *intimus* erectus, cyathiformis, margine multifido inflexo. *Stamina* 10 (20, *Lindl.*) corollæ interioris basi inserta, serie simplici basi monadelpha; filamentis membranaceis, latis, inflexis; antheris adnatis bilocularibus. *Discus* annularis subcyathiformis. *Ovarium* adherens, carnosum, loculis 5; ovulis 20, campylotropis, superpositis, per paria apici placentæ axillis semiliberæ affixis. *Stylus* pentagonus, angulis subalatis; *stigma* disciforme pentagonum 5-radiatum, intra angulos glandulam verruciformem (an verum stigma) gerens. *Frutices Mali Punici* magnitudine, "cortice (in *N. Vogelii*) extus rubescente punctulis albis crebre consperso: septis pulposis in speciminibus nostris exsiccatis et semicollapsis et cum integumento seminum conglutinatis." *Semina* fabæ magnitudine, reniformia, exalbuminosa; cotyledonibus plano-convexis, radicula immersa. *Lindl.—paucis mutatis.*

NAPOLEONA *imperialis*; foliis subcoriaceis late oblongis acuminatis.

NAPOLEONA imperialis. *Pal. de Beauv. Fl. d'Oware et de Bénin, v. 2. p. 29. t. 78 (figura mala). Lindl. in Gard. Chron.* 1844, *p.* 780, *t. cum Ic. and Bot. Reg.* 1844, *Suppl. p.* 77.

NAPOLEONA Heudelotii. *Adr. de Juss. in Ann. des Sc. Nat. N. S. v.* 2. *p.* 227.

A more than ordinary interest has attached to this plant, arising partly from the circumstances under which the species was discovered, and partly from its name, given in honour of one of the most remarkable men that ever lived, and, still more, perhaps, from the singular structure and colour of the flower, as exhibited in the figure of the Baron Palisot de Beauvois;—so remarkable, indeed, that doubts have been expressed of the very existence of the plant.

"Dans l'an 1786 le fils d'un roi nègre (writes M. de Jussieu) des côtes d'Afrique, avoit été amené en France, par un capitaine de vaisseau, qui, après quelques mois de séjour, fut chargé de le reconduire dans sa patrie, connue sous le nom d' *Oware*, pays voisin de la ligne et limitrophe du royaume de *Bénin*. M. de Beauvois, privé, par une mesure générale, d'une charge considérable de finance qu'il exerçait, voulut profiter de sa liberté et de cette occasion pour faire des recherches d'Histoire Naturelle à Oware. Il exposa ses vues à l'Académie des Sciences, qui les approuva, et après avoir également obtenu l'attache et l'autorisation du gouvernement, il partit à ses propres frais, avec le jeune noir, dont il s'était concilié l'affection.

"Dans le trajet, il relâcha à Lisbonne, où il fit quelques observations, et à Chama, sur la côte de Guinée, où il récolta plusieurs plantes curieuses, dans le temps des graines et des échantillons. Son arrivée à Oware fut signalée par une espèce d'epidémie, résultant de la chaleur humide des côtes vaseuses et marécageuses de ce pays. Elle enleva rapidement deux hommes affidés, qu'il avait amenés avec lui, et successivement plusieurs autres personnes de l'équipage. Bientôt lui-même fut malade très-gravement; cependant son courage le soutint. Avant sa maladie, et dans les intervalles qui lui laissèrent plusieurs rechutes, il parcourut le pays d'Oware, une partie du Galbar, et alla jusqu' à *Bénin*. Il fit dans chaque lieu des observations de divers genres sur les mœurs et les habitudes de ces peuples, sur le climat, les sites et les productions naturelles. Il rassembla les dépouilles de beaucoup d'animaux et récolta un grand nombre de plantes qu'il m'addressa pour les conserver en dépôt jusqu' à son retour en Europe. L'insalubrité du climat le força enfin à quitter l'Afrique après un séjour de quinze mois."

"Emporté par mon zèle," (says M. de Beauvois himself in his Flore d' Oware et de Benin) "et par mon goût dominant pour l' Histoire Naturelle, j'ai affronté tous les dangers; j'ai eu le bonheur, après avoir vu périr plus de cinq sixièmes des Européens qui y sont passés, de les surmonter tous; et j'ai aujourd'hui la satisfaction d'offrir aux naturalistes le fruit de mes peines, de mes dangers, et de mes sacrifices multipliés."

Among the fruits of the voyage the author justly prides himself upon the discovery of *Napoleona imperialis,* as likely to constitute a new order of plants, between *Cucurbitaceæ* and *Passifloreæ.* Unfortunately his analyses of the figure are not satisfactory; and the colour was so unusual as to raise suspicions that the plant was rather the offspring of imagination than a reality. At length M. Heudelot, "l'un des martyrs de la science, qui, après plusieurs années de voyage dans l'Afrique centrale, finit par succomber à l'influence de ce climat si funeste aux Européens," detected and sent to the Museum at Paris, a *Napoleona* from Fonta-Dhiallon in Senegambia, of which a figure and description are given by M. Adrien de Jussieu in the

Annales des Sciences above quoted. After a careful comparison of this plant with the plates and very imperfect specimens of P. de Beauvois, existing in the Herbarium of the late M. Delessert, M. de Jussieu, with no little hesitation, considers them distinct, and gives the name of *N. Heudelotii* to the Senegambia plant, a locality, indeed, considerably remote from Oware and Benin:—at the same time, the only specific difference which M. de Jussieu detects is "*N. imperialis,* flore cœruleo; et *N. Heudelotii,* flore purpureo."

In 1843, Mr. Whitfield returned from one of his many voyages of Natural History research to Sierra Leone, a country, it will be observed, intermediate with Senegambia and Oware, and brought with him both living and dried specimens of *Napoleona,* the latter of which, after a most careful investigation, Dr. Lindley concludes to be identical with Beauvois' plant, and I think with justice; for though, when recent, these flowers are described by Mr. Whitfield to be "apricot-coloured and crimson;" yet the same traveller remarks that, when decaying, they assume a *bluish tint*: which will account for their colour, as described by Beauvois, "d' un beau bleu, avec un réflet violet."

The collection of plants formed by the unfortunate Dr. Vogel in the last voyage up the Niger, again contains specimens of a *Napoleona,* which Drs. Hooker and Planchon, who are mainly charged with the publication of that collection, pronounce distinct. Of this, as accurate a figure and description as can be drawn up from dried specimens, both of flower and fruit, are given in the 8th vol. of Hooker's Icones Plantarum, t. 800, and called *N. Vogelii,* Hook. et Planch.

At length, in 1848, one of the living plants, brought home by Mr. Whitfield and purchased by His Grace the late Duke of Northumberland, produced perfect flowers in the month of May. It was most obligingly and immediately sent to me, by Her Grace the Duchess Dowager, and from it our flowering specimen is taken. The representation of the fruit, it must be premised, is done from Vogel's specimens, and consequently belongs to the *N. Vogelii.* Between that plant and ours, however, I can point out no difference, save in the shape and relative size of the leaves. No correct opinion can be formed of the colour from the dried specimens, on which some stress is laid in the Icones Plantarum. In regard to the *N. Heudelotii* of M. Adrien de Jussieu, being in possession of a specimen gathered by M. Heudelot himself, I find the leaves and solitary flower so exactly to correspond with our plant, that I have no hesitation in pronouncing them specifically the same. The colour of the corolla, which the author calls *purpurea,* is the same in the dry state with that of our *N. imperialis;* and the outer corolla is deeply toothed, as in our plant and *N. Vogelii.*

It is needless to express the views of the affinities of this plant as stated by various writers, Beauvois, Brown, De Candolle, Lindley, and, lastly, M. Planchon in the Icones Plantarum, for they will be more fully given in the forthcoming "Niger Flora."

Fig. 1. Section of a portion of the flower, from which the calyx-lobes and the outer series of the corolla are removed. Judging from this section, what is in the generic character called the inner of three whorls or series of the corolla, might rather be considered a second and outer series of filaments, which are abortive. According to this view, the corolla would be in a double series and the stamens in a double series.

4388.

Fitch del et lith.

Reeve Benham & Reeve imp

TAB. 4388.

ARISÆMA MURRAYI.

Dr. Murray's Arisæma.

Nat. Ord. AROIDEÆ.—MONŒCIA MONANDRIA.

Gen. Char. Spatha basi convoluta. *Spadix* superne nudus, inferne unisexualis raro androgynus: organa rudimentaria superposita aut plerumque nulla. *Antheræ* in filamentis distinctis verticillatæ, loculis aut discretis aut appositis, poro aut rima subtransversali dehiscentibus. *Ovaria* libera, unilocularia, ovulis 2–6 raro pluribus basilaribus erectis. *Styli* breves aut nulli. *Stigmata* indivisa. *Baccæ* mono- aut oligo-spermæ. *Semina* albuminosa. *Bl.*

ARISÆMA *Murrayi*; foliis peltatisectis, segmentis 5–6 ovato-lanceolatis acuminatis copiose penninerviis nervoque intramarginali, spathæ parte inferiore in tubum latum connata (viridi) superiore ovata convexa subcucullata acuminulata alba macula transverse rubra, spadice subulato flexuoso vix spathæ tubo longiore.

ARUM Murrayi. *Graham, Cat. Pl. Bombay. p.* 229.

Few of the *Aroideæ* are more worthy of cultivation than the present, of which tubers were sent to us from Bombay, by our valued friend Mr. Law, of Tanna. It is described in the work above quoted, where Mr. Law observes he has frequently met with it in the valleys of the Bandsda hills, to the south-west of Surat. Reared in the stove, it sends up, in early spring, first the very delicate inflorescence and afterwards the leaves. Of the genus *Arisæma,* thirty-one species are noticed by Blume, in the first volume of "Rumphia;" twenty-two are Asiatic, six are found in North America and two in Brazil.

DESCR. "*Tubers* about the size of small potatos." *Scape* a foot and more long, terete, purplish, below sheathed, terminated above by a very delicate and handsome *spatha,* which has its lower half green and convolute into a tube (including the spadix); the upper half of the most delicate white, with a red ring round the mouth, ovate, convex, inclined over the mouth, almost cucullate, faintly striated, terminated by a very narrow twisted point. *Spadix* subulate, longer than the tube of the spatha,

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but much shorter than the entire spatha, flexuose; the upper half naked: the lower clothed with flowers, of which the lower portion consist of *pistils,* rather crowded, ovate or obtusely tetragonal, tapering into a short *style,* terminated by the truncated stigma. Above the pistils the spadix is occupied by numerous filaments, terminated with a *whorl* of three or four globose *anthers,* opening by a transverse cleft, and above these, at the base of the naked portion of the spadix, are a few abortive *pistils.* The *leaf* appears after the flower, and is borne upon a long terete *petiole,* peltate and deeply cut into five or six ovato-lanceolate acuminate segments, each closely penninerved, and there is a nerve, or vein, running along within the margin.

Fig. 1. Spadix. 2. Stamens. 3. Pistil. 4. Ovary, from which the seeds have started:—*magnified.*

4389

Fitch del et lith

Reeve Benham & Reeve imp

TAB. 4389.

LITHOSPERMUM CANESCENS.

Hoary Gromwell.

Nat. Ord. BORAGINEÆ.—PENTANDRIA MONOGYNIA.

Gen. Char. Calyx 5-partitus, lobis æqualibus. *Corolla* infundibuliformis aut rarius hypocrateriforma, pervia, fauce nuda, v. rarius gibbis 5 cum staminibus alternantibus, pilosa aut lævi, lobis subrotundis. *Antheræ* oblongæ, brevissime stipitatæ, plerumque inclusæ. *Stigma* capitatum subbilobum. *Nuculæ* ovatæ, læves aut rugosæ, basi truncatæ imperforatæ,—Herbæ *aut* Frutices *habitu et habitatione diversæ.* Radices *sæpe crassæ cortice rubro et ideo tinctoriæ.* Folia *alterna integra sæpius pilis simplicibus scabra.* Flores *spicati aut racemosi, bracteolati, colore varii. DC.*

LITHOSPERMUM *canescens*; caulibus erectis herbaceis subsimplicibus molliter villosis, foliis sessilibus oblongo-lanceolatis obtusis canescentibus, bracteis conformibus, corollæ aureæ tubo calycem hirsutum duplo superante lobis rotundatis.

LITHOSPERMUM canescens. *Lehm. Asper. v.* 2. *p.* 305. *Hook. Fl. Bor. Am. v.* 2. *p.* 88. *De Cand. Prodr. v.* 10. *p.* 79. *Asa Gray, Bot. North. Un. S. p.* 336 *Spreng. Syst. Veg. v.* 1. *p.* 544.

BATSCHIA canescens. *Mich. Am. v.* 1. *p.* 130. *t.* 14.

BATSCHIA conspicua. *Rich. in Frankl. Journ. App. ed.* 1. *p.* 49.

LITHOSPERMUM conspicuum. *Spreng. Syst. Veg. v.* 1. *p.* 544.

Batschia and *Lithospermum* are now generally considered to be one and the same genus. The present species is peculiar to North America, but has a rather extensive range, from Canada and the Saskatchawan in the north to Carolina in the south. Although a perfectly hardy plant, and well worthy of a place in every garden, it has only been lately introduced by Edward Leeds, Esq., of Manchester, through Mr. Goldie; and our figure is taken from flowering specimens, kindly presented to the Royal Gardens by that gentleman in May, 1848.

DESCR. *Root* long, woody, abounding in purple dye. Several erect herbaceous *stems,* a span and more long, simple or only slightly branched above, spring from the crown of the root. These *stems* are terete, hairy. *Leaves* alternate, erecto-patent, sessile, oblong, lanceolate, obtuse, canescent with closely pressed

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compact hairs, *bracteas* or floral leaves resembling them. *Flowers* in leafy secund racemes. *Calyx* cut into five deep linear hairy segments, half as long as the tube of the corolla. *Corolla* large (for the genus), golden-coloured, *tube* infundibuliform, *limb* of five spreading, rounded segments: within the tube are five small glands, and below them five small *stamens*. *Ovary* of four deep lobes, *style* included.

Fig. 1. Flower. 2. Corolla laid open. 3. Pistil:—*magnified*.

4590.

Fitch del et lith

Reeve Benham & Reeve imp

TAB. 4390.

EPISCIA BICOLOR.

Two-coloured Episcia.

Nat. Ord. GESNERIACEÆ.—DIDYNAMIA GYMNOSPERMIA.

Gen. Char. Calyx liber 5-phyllus seu 5-partitus. *Corolla* infundibuliformis, tubo rectiusculo basi postice gibbo, limbo 5-lobo. *Stamina* 4 didynama cum quinti postici rudimento e basi tubi. *Annulus hypogynus* in glandulam posticam tumens. *Stigma* bilamellatum. *Capsula* subglobosa membranacea bivalvis, placentis 2 parietalibus bilamellatis. *Semina* ∞ oblonga.—Herbæ *Americanæ molles decumbentes radicantes.* Folia *petiolata venis anastomosantibus percursa.* Flores *axillares solitarii v. cymosuli et bracteati. DC.*

EPISCIA *bicolor*; hirsuta humilis decumbens, foliis petiolatis cordato-ovatis acutis grosse serratis impresse venosis, pedunculis petiolos subæquantibus axillaribus simplicibus v. bi-trifidis gracilibus hirsutis, sepalis lineari-lanceolatis apice recurvis, corollæ tubo calyce duplo longiore, ore obliquo, limbo subæqualiter 5-lobo, lobis rotundatis, ovario superne hirsuto.

A very pretty Gesneriaceous plant, raised from seeds sent from New Grenada by our collector, Mr. Purdie. It blooms in the stove, and continues throwing up flowers for several weeks in succession, many growing together among the ample dark foliage, and of white colour, bordered with purple. It seems sufficiently to accord with the character of the genus *Episcia*, to warrant us in placing it there.

DESCR. A perennial herbaceous and somewhat creeping, as well as procumbent plant, with very short hairy *stems. Leaves* large, hairy, between ovate and cordate, spreading, somewhat glossy, acute, with large serratures all round, penninerved and coarsely reticulated, the nerves impressed. *Petioles* short, hairy. *Peduncles* from the axils of the leaves and scarcely longer than the petioles, simple or bi-trifid and bracteated, slender, hairy, or rather hispid. *Flowers* erect, or inclined. *Calyx* hairy, deeply cleft into five nearly erect, linear-lanceolate *sepals*, recurved at the apex. *Corolla* with the tube rather short, white, gibbous on one side at the base, dilated above, tumid beneath, within spotted with purple, the *mouth* oblique; the *limb* rather large,

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nearly equal, white with a broad purple border, deeply five-lobed, the lobes rounded. *Stamens* inserted near the base of the tube: *filaments* didynamous, subulate, included: *anthers* approximate in two pairs; one abortive filament is between the two pairs of fertile ones. *Ovary* free, ovate, hairy above, glabrous and subtetragonal below, with a large solitary gland on one side. *Style* included within the tube of the corolla: *stigma* of two furrowed spreading lips.

Fig. 1. Corolla laid open. 2. Pistil and gland. 3. Ovary. 4. Ovary, cut through transversely:—*magnified.*

4391.

[illegible] del. et lith

Reeve, Benham & Reeve, imp.

Tab. 4391.

CIRRHOPETALUM FIMBRIATUM.

Fimbriated Cirrhopetalum.

Nat. Ord. Orchideæ.—Gynandria Monandria.

Gen. Char. (*Vide supra,* Tab. 4237.)

Cirrhopetalum *fimbriatum*; pseudo-bulbis glomeratis ovato-sphæricis subtetragonis, foliis subtribus ovato-lanceolatis acutis parvis, scapo radicali gracili, umbella pluriflora, sepalis lateralibus maximis lineari-ligulatis acutis cohærentibus, supremo petalisque ovatis anguste acuminatis fimbriatis, labello parvo crasso linguiformi nudo, columna angulis cornutis edentulis, anthera papillosa.

Cirrhopetalum fimbriatum. *Lindl. in Bot. Reg.* 1839, *Suppl. p.* 72.

Cirrhopetalum Wallichii? *Grah. Cat. Pl. Bombay, p.* 205.

A rare and most lovely plant, sent by J. E. Law, Esq., to the Royal Gardens from Bombay, where it is said to be by no means common, growing on Ayeen trees about Parr and the Rotunda Ghaut. Attached to masses of Sphagnum and suspended from a rafter of the Orchideous House, it bears its most curious flowers copiously in April and May.

Descr. *Pseudo-bulbs* small, clustered, subglobose and obtusely angular, but tapering upwards so as to be somewhat ovate: most of them are leafless, but a few have about three small ovato-lanceolate, acute *leaves* at the apex. *Scape* from the base of the bulb, erect, a span long, slender, bracteated, bearing an *umbel* of spreading *flowers* which are very curious in structure, and well worthy inspection with a microscope. The greater portion of the flower is constituted by the two lateral sepals, which stand forward, are nearly two inches long, linear or linear-spathulate, acute, combined by their inner edges; the other parts of the flower are in comparison minute: the remaining or superior sepals and the petals are *ovate,* suddenly tapering into a subulate point, red, and elegantly fimbriated. Lip red,

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tongue-shaped, thick, fleshy, the upper half reflexed. Column with two subulate horns at the upper anterior angles. *Anther* hemispherical, granulated. *Pollen-masses* four, of which two are very small.

Fig. 1. Entire flower. 2. Column and lip. 3 and 4. Pollen-masses :—*all more or less magnified.*

4392.

et lith.

Reeve, Benham & Reeve imp.

TAB. 4392.

BURTONIA PULCHELLA.

Beautiful Burtonia.

Nat. Ord. LEGUMINOSÆ.—DECANDRIA MONOGYNIA.

Gen. Char. *Calyx* profunde 5-fidus. *Petala* 5 decidua, longitudine subæqualia, 2 carinalia, dorso concreta. *Ovarium* dispermum. *Stylus* subulatus, basi dilatatus. *Stigma* obtusum imberbe. *Legumen* subrotundum, modice ventricosum. *Strophiola* seminis nulla.—Suffrutices *Australasici.* Foliola *aut folia subulata.* Rami *sæpe puberuli.* Pedicelli *solitarii.* *DC.*

BURTONIA *pulchella*; ramis lævibus apice puberulis mox glabris, foliolis lævibus glabris angustissime linearibus obtuse mucronatis rectis margine revolutis, pedunculis axillaribus folio brevioribus calycem æquantibus basi medioque 2-bracteolatis, calycis lobis margine intus pilosiusculis. *Meisn.*

BURTONIA pulchella. *Meisn. in Pl. Preiss. p.* 41.

Messrs. Lucombe and Pince have had the good fortune to raise three beautiful species of *Burtonia*, from Mr. Drummond's Swan River seeds. One is the *Burtonia conferta*, D.C., figured in Bot. Reg. t. 1600: a second is the charming species here represented: the third is *B. villosa*, Meisn., which, as we shall have the opportunity of showing, is neither inferior in size nor in richness of colour in the flowers to the present one. *B. pulchella* forms a graceful shrub, about two feet high, with slender branches, heath-like leaves, and the flowers copious and large, terminating the ramifications. It flowers during the spring and summer months.

DESCR. A small *shrub*, with glabrous slender *stems*; the young ones herbaceous and slightly downy. *Leaves* sessile, and scattered, trifoliate; *folioles* narrow-linear, obtuse, with a curved rather broad mucro, the margins revolute, smooth and glabrous. *Peduncles* solitary from the axils of the superior leaves, but so copious from the uppermost ones that the flowers conceal the foliage, and the inflorescence may be said to be a leafy spike: each *peduncle* is shorter than the leaf, bearing at the base, and near the middle, a pair of small appressed ovate bracts. *Calyx* about as long as the peduncle, campanulate,

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obscurely two-lipped, green spotted with brown: the upper *lip* two, the lower three-lobed, the lobes ovate-ciliated. *Flowers* large, very beautiful. *Vexillum* broad, rich purple, with a yellow spot at the base of the lamina. *Alæ* and *vexillum* deep puce colour. *Stamens* ten, free. *Ovary* ovate-oblong, hairy, tapering into a subulate *style*, a little longer than the stamens. *Stigma* minute, capitate.

Fig. 1. Portion of a branch, with a leaf. 2. Portion of a leaf. 3. Peduncle and flower, from which the petals are removed. 4. Pistil. 5. One of the wings:—*all more or less magnified.*

flowering season is past, the *C. Bethunianum* does not lose all its charms: the crimson bracts and calyces persist, and the latter contain each a four-seeded berry of the richest blue colour.

The *Scitamineæ*, an Order of plants not much cultivated in England, produces some beautiful species in Borneo, especially *Alpiniæ*.

A fine white-flowered *Bignonia* is lovely and fragrant; and an *Echites*, also found on river-banks, is handsome and endowed with a rich perfume.

Melastomas grow everywhere, and supply the many-hued pigeons with abundant food in the soft and pulpy fruit.

There are several charming kinds of climbers in Borneo: among the most conspicuous is an undescribed *Banhinia*, which, in December, invests the trees with large bunches of gaudy crimson blossoms. *Hoya imperialis* is very striking: its large rich purple flowers are relieved by an ivory-white centre. Various beautiful species of *Combretum* abound. The Order *Cyrtandraceæ* is rich in the genera *Lysinotus* and *Æschynanthus*: the *L. Aucklandiæ* surpassing all the others in the size and gorgeous hue of its clustered blossoms, while its growth and woody stems raise it to the dignity of a shrub.

The vegetable productions of the mountains in Borneo, are quite different from those above enumerated. There, the genus *Dacrydium*, and other *Taxaceæ*, recall the Fir and Cypress of our northern clime. Herbaceous plants, some of which are beautiful, grow on the exposed and damp rocks; while in mossy places, the charming golden-leaved *Anœctocheilus* and a new and still finer species of the same genus abound.

No fewer than eight species of the wonderful *Pitcher-plants* have been discovered in the western part of Borneo. In some instances, the pitcher would contain more than a pint of water. Those of *Nepenthes Rafflesiana* are generally crimson. This species chiefly inhabits rocky islands near Singapore, and is easily known by its white and pulverulent stems and bushy habit, not exceeding four or five feet high. The largest kind found in Borneo, and which Mr. Low calls *N. Hookeriana*, inhabits deep and shaded jungles, where it climbs to the very tops of the trees. Its pitchers are nine inches long, and the lid is furnished with two broad and beautifully fringed wings: like *N. Rafflesiana* it produces two kinds of pitchers, one broad and crimson, the other long, trumpet-shaped, and of a green colour spotted with crimson; while the leaves are dark green above and of a fine peach-coloured red beneath.

N. ampullacea also climbs and is an inhabitant of the jungles, matting the ground with its shoots and only producing pitchers on those stems which do not ascend trees. Another kind, approaching *N. Boschiana*, bears beautiful purple flowers, elegant foliage, and small tubular pitchers. It grows about eight feet high and is confined to rocky places near the sea: it is the handsomest of the genus.

The Fruits of Borneo.

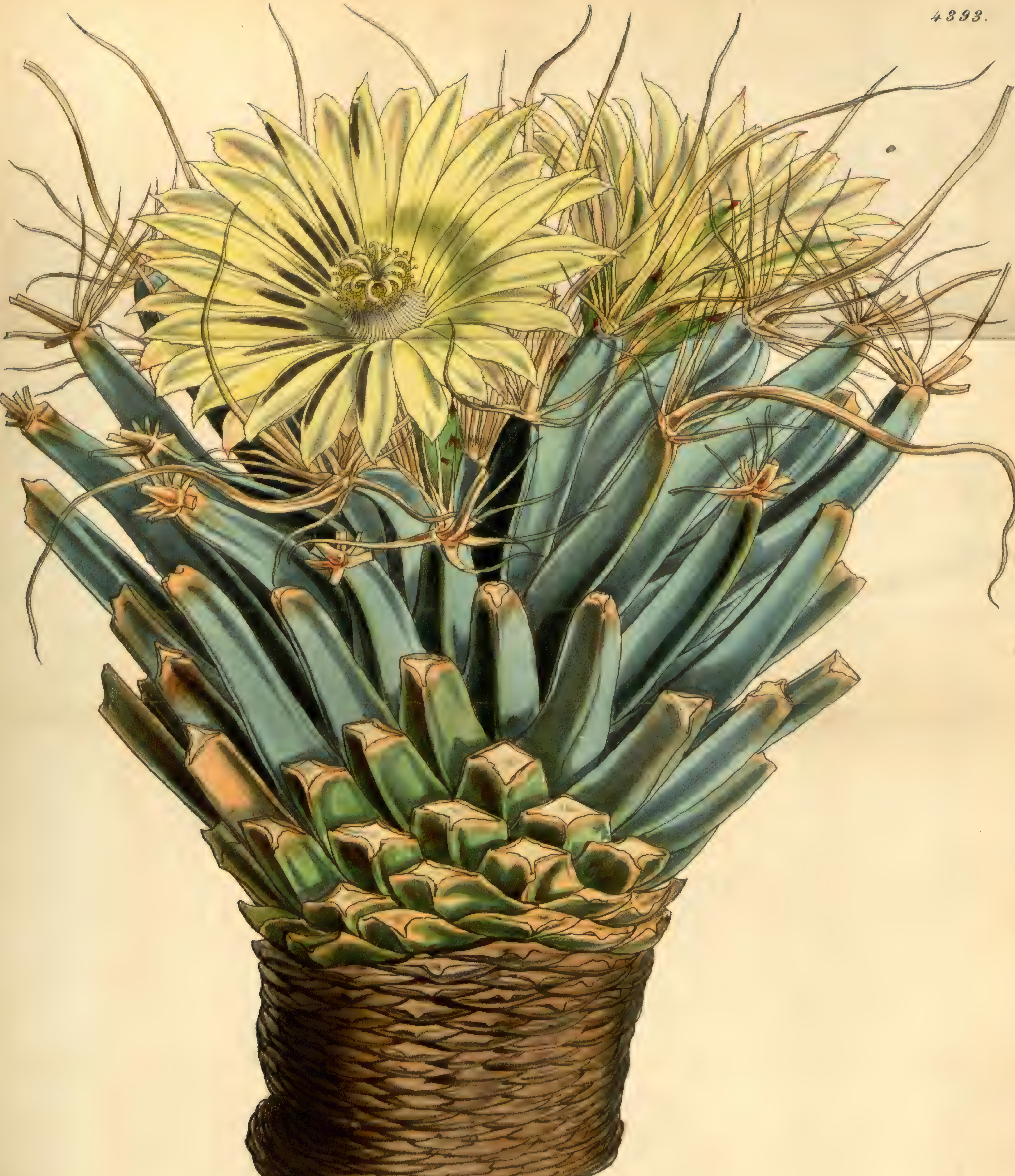
The *fruits* of the Indian Islands have long been prized, and though the neighbouring countries have imported and cultivated them, they still attain their greatest perfection in their native land.

"Malaya's nectared *Mangustin*," and the rich *Durian*, with the *Lansat* (*Lancium*), are among the best. The first is the produce of the *Garcinia Mangostana*, which is a tree three feet high, bearing large and handsome leaves, and a fruit, about the size of an apple: its bright crimson skin and snowy pulp have an inviting appearance: the flavour is highly grateful, and the tree bears two crops in the year. The *Durian* is produced by the tree called *Durio zibethinus*, which often attains more than sixty feet in height and yields fruit four times a year. To Europeans, the peculiar and strong odour of the fruit is often repulsive and prevents their relishing its rich flavour. The Dyaks are passionately fond of the *Durian*. Offensive as its garlic-like odour becomes when gathered for three or four days and sold in the bazaars, this fruit, when fresh, is equally agreeable to the taste and smell. To eat it in perfection, it must be plucked from the tree. Its large seeds are roasted and resemble chestnuts: the Dyaks preserve them carefully, to be used when the fresh *Durian* can no longer be procured. The *Lansat* is, perhaps, the most universally palatable; the fruit is pulpy, aromatic and delicate, and is produced in bunches from the stem and branches of the tree.

The *Bread-fruit* and the *Jack*, both species of *Artocarpus*, grow in Borneo. A single fruit of the latter often weighs sixty pounds.

A small tree of the order *Sapotaceæ* produces a sweet subacid fruit, called *Tampui*; from which an intoxicating drink is prepared by the Dyaks. A species of *Nephilium* is plentiful in the woods: it bears a very pleasant small fruit. The varieties of *Mango*

4393.



Fitch, del et lith

Reeve, Benham & Reeve, imp.

Tab. 4393.

LEUCHTENBERGIA Principis.

Noble Leuchtenbergia.

Nat. Ord. Cacteæ.—Icosandria Monogynia.

Gen. Char. Sepala numerosa basi ovario adnata, in tubum elongatum concreta, exteriora breviora, calycinalia sparsa, media longiora subcolorata, intima petaliformia. *Stamina* numerosissima cum tubo concreta; *stylus* crassus columnaris; *stigma* radiis recurvatis subdecem. *Ovarium* uniloculare: *ovulis* numerosissimis parietalibus.—Frutex *carnosus, inferne sublignosus, elongato-cylindraceus, spiraliter mammillosus, mammillis valde elongatis foliiformibus (3–4-uncialibus) acute triquetris truncatis, (inferioribus deciduis et tunc caudex cicatricatus) apice longe glumaceo-spinosis, spinis exterioribus brevioribus subdecem, centrali longissima basi triquetra.*

Leuchtenbergia *Principis.*
Leuchtenbergia Principis, *Hortulan.*

Few persons, we think, on viewing this plant when destitute of flower, would imagine it to belong to the *Cacteæ*. The mammillæ have rather the appearance of the leaves of some Aloid plant, while the stem, looking as if formed of the persistent bases of old leaves, resembles that of some *Cycadeæ*. The blossom, however, if nothing else does, betrays its real character; for it differs in no particular from that of *Cereus*. The whole habit of the plant is, however, so unlike any other Cactaceous plant, that for consistency's sake, if *Cereus* and *Echinocactus* are natural and good genera, this will constitute a genus apart; and I willingly adopt a name by which this plant is said to be known upon the Continent, although I have failed to find the place where any such name is recorded. Our plants were obtained for us from the neighbourhood of Rio del Monte, Mexico, through the favour of John Taylor, Esq. It flowers in the summer months.

Descr. Our largest *plant* is a foot high, its main *trunk* erect, but crooked, as thick as a man's arm, clothed with the dense mass of the persistent bases of old mammillæ, or perhaps rather of the withered mammillæ themselves, shrunk and reduced to a mass of closely pressed scales; above they gradually appear more

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perfect, at first short and truncated, till the crown of the plant is clothed with perfectly formed *mammillæ* resembling aloid leaves, four or five inches long, glaucous green, succulent, triangular, truncated at the apex, and there bearing six or seven long chaffy, or almost horny, linear-subulate, flexuose scales, of which the central one is about as long as the mammillæ, and the others, forming a whorl round the centre, are about two or three inches long, spreading, triangular below. These appear to be after a time deciduous, for the lower withered mammillæ are destitute of them. From near the centre of the summit of the plant the *flowers* appear, solitary, from the axil of a mammilla, large, sulphur-yellow. *Calyx* formed of a number of imbricated, oblong, greenish scales, gradually passing upwards into longer and more coloured scales, till they spread into a long ray of numerous, yellow, acute, linear, glossy *petals*, giving four inches and more to the diameter of the blossom. *Filaments* numerous, pale yellow, arising from below the base of the petals: *anthers* subglobose, orange. *Style* as long as the stamens: *stigma* of nine, spreading, downy, subulate *rays*, recurved at the points.

Our plate represents a much reduced figure of our largest flowering specimen, and the upper portion of a plant:—*natural size.*

4394

Fitch del. et lith.

Reeve Benham & Reeve imp.

TAB. 4394.

SONERILA STRICTA.

Upright Sonerila.

Nat. Ord. MELASTOMACEÆ.—TRIANDRIA MONOGYNIA.

Gen. Char. *Calycis tubus* turbinato-trigonus, ad medium usque adhærens; margine libero, 3-dentato, circumscisse deciduo. *Petala* 3, summo calycis margine inserta. *Stamina* 3, dentibus calycinis opposita; *antheræ* conformes, lanceolatæ, basi sagittata affixæ, poris 2 apicalibus dehiscentes; *connectivum* æquale. *Ovarium* semi-adnatum, 3-loculare, *loculis* dentibus calycinis oppositis, squamis tribus carnosis subrotundis petalis oppositis basi cohærentibus coronatum. *Stylus* filiformis, *stigmate* obtuso. *Capsula* in fundo tubi calycis, squamis epigynis ampliatis incrassatis coriaceis vestiti, immersa; apice intra calycem loculicido-trivalvis. *Semina* numerosa, recta.—Herbæ v. suffruticuli; foliis *oppositis, plerumque plus minus inæqualibus, basi* 3–7-*nerviis v. quandoque indefinite penninerviis, membranaceis;* racemis *axillaribus terminalibusve unilateralibus;* floribus *majusculis, pulchre roseis v. cæruleis, rarissime tetrameris. Bennett.*

SONERILA *stricta*; annua, caule erecto stricto acute tetragono ramoso, foliis oppositis supremis quaternim verticillatis lineari-lanceolatis puberulis remote serratis uninerviis discoloribus, spicis terminalibus paucifloris, rachi ovariisque obtuso trigono-cylindraceis glanduloso-pilosis.

This, as far as I know, is the first species of the genus that has yet been cultivated in Europe. The seeds were received by Messrs. Veitch and Son of Exeter from Mr. Thomas Lobb, who collected them in Java. Flowering specimens were sent to me in May, 1848. At first sight, and especially in the leaves, this has very little the appearance of a Melastomaceous plant, and the trimerous character of the flower is at variance with most of the genera. It is an extremely interesting little plant, though it may not meet with much favour from cultivators in general.

An admirable memoir on this genus, from the pen of Mr. Bennett, will be found in Horsfield's "Plantæ Javanicæ rariores:" but the present is not described among the fourteen species there characterized, nor do we find it in any other work.

DESCR. *Root* annual. *Stem* slender, tetragonous, red, erect, branched, a span and more high. *Leaves* in remote pairs, except the uppermost on the branches, which are in a whorl of four, all of them spreading, linear-lanceolate, mucronato-acute, puberulous, coarsely and distantly serrated, dark green above, red-purple beneath. *Spikes* terminal, of from six to nine flowers. *Calyx-tube* adherent, trigono-cylindrical, slightly downy and with glandular hairs: the limb of three triangular teeth. *Petals* three, spreading, large, obovate, deep rose, very acute. *Stamens* three: *filaments* subulate: *anther* subulate, two-lobed at the base. *Style* filiform, declined, as long as the filaments.

Fig. 1. Portion of the stem and leaves. 2. Flower. 3. Stamen. 4. Section of ovary:—*magnified*.

4395.

Fitch del et lith.

Reeve Benham & Reeve imp

TAB. 4395.

GMELINA RHEEDII.

Rheede's Gmelina.

Nat. Ord. VERBENACEÆ.—DIDYNAMIA GYMNOSPERMIA.

Gen. Char. Calyx cyathimorphus, 4–5-dentatus, persistens, sub fructu paulo auctus in antica parte sæpius glandulas nonnullas sessiles verruciformes gerens. *Corolla* basi tubulosa, faucibus valde ampliatis ventricoso-campanulata, obliqua; *limbus* patens bilabiato-quadrifidus, lobis tribus superioribus subæqualibus supremo fornicato lateralibus planis, quarto infimo maximo interdum bilobo. *Stamina* 4, didynama, ascendentia, vix exserta. *Antheræ* biloculares, loculis linearibus connectivo dorsali apice insertis postice (imprimis staminum longiorum) distinctis, rima longitudinali dehiscentibus. *Ovarium* 2–3-loculare, loculis uniovulatis. *Stylus* filiformis; *stigma* inæqualiter bifidum. *Drupa* baccata, monopyrena, 2–4-locularis, putamine osseo basi perforato lævi. *Semen* erectum.—Frutices *vel* arbores *interdum magnæ, ex Indiâ orientali ejusque Archipelago,* ramis *sæpius spinosis,* foliis *simplicibus oppositis integerrimis lobatisve.* Inflorescentia *cymoso-paniculata;* panicula *racemiformis, aut composita e* cymulis *brevibus decussatis paucifloris aut* cymulis *ad unum florem pedicello bibracteolato fultum reductis racemum simplicem mentiens.* Bracteæ *sæpius caducæ.* Corolla *conspicua.* Drupa *magna oblonga. Schauer in DC.*

GMELINA *Rheedii*; subarborea inermis tota molliter pubescens, foliis longe petiolatis rhombeo-cordatis brevi-acuminatis nunc trilobis basi (planta recente obsoletissime) biglandulosis subtus cinerascenti-tomentosis, thyrso multifloro, bracteis ovatis acutis brevissimis, calyce tomentoso subcylindraceo-hemisphærico acute 4-dentato, corollæ extus pubescentis limbo amplo bilabiato lobis 5 subæqualibus rotundatis inferiore magis elongato marginibus (omnium) reflexis.

CUMBULU, Rheede, *Hort. Malab. v.* 1. *p.* 41.

From the stove of the Royal Gardens of Kew, where it has been so long cultivated that the period of its introduction is not known, nor does it appear (probably from not having previously blossomed) to have been recognised as a *Gmelina*; none of the genus having been recorded in either edition of the Hortus Kewensis, nor, so far as I know, has any been supposed to be in cultivation in Britain. The present one, if space be given to it, is worthy of a place in the stove. It flowered with us in May, 1848. Respecting the species I do not find it to accord with any described by Schauer in De Candolle. It comes nearest to *G. arborea,*

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Roxburgh, of any, but manifestly cannot be that, of which we have not only an accurate description in the Flora Indica, but a figure in the Plants of Coromandel (vol. iii. t. 246, not quoted by Decaisne); and the leaves and flowers are totally at variance with our plant. It is true that Roxburgh quotes the *Cumbulu* of Hort. Malab. as the same plant, as he has quoted the *Corona Ariadnis* of Rumphius under his *Hoya Sussuela* (see under our tab. 4397) with which it has no affinity. The plant of Rheede is indeed a faithful representation of our species. In my Herbarium I possess what is probably the same, gathered by Dr. Thomas Thomson at Gendwal (but without flower), and closely allied, another, if not the same species, identical indeed as to foliage and flowers, but in which the bracteas are very long, half to three-quarters of an inch, and subulate.

Descr. Our *plant*, cramped in a pot, forms a small tree, thirteen or fourteen feet high, with few, straggling *branches*. Young branches downy, as are the *leaves*, the latter are opposite, on long petioles, rhombeo-cordate, that is, with the base cuneate, and there, though scarcely visible in the recent state, having two orbicular glands, the margin entire or two- to three-lobed, the upper side dark green, the lower grey from more copious down. *Flowers* in a *thyrsus*, large, handsome, bracteated; *bracteas* very small, ovate, concave, acute. *Calyx* cup-shaped, too tubular to be called hemispherical, but approaching to it, downy. *Corolla* large, dark tawny yellow, paler and very downy externally: *tube* many times longer than the calyx, enlarged upwards: *limb* two-lipped, spreading: upper lip of two large rounded lobes, lower of three large lobes resembling the upper ones, except that the intermediate segment is more elongated, broader, and projects more forward; all have the margins reflexed soon after expansion. *Stamens* didynamous; the two longer ones a little exserted. *Ovary* elliptical: *style*, as it were, jointed on the ovary, included: *stigma* bifid, segments subulate, unequal.

Fig. 1. Pistil:—*magnified*.

Fitch del et lith.

Reeve Benham & R

TAB. 4396.

WEIGELA ROSEA.

Rose-coloured Weigela

Nat. Ord. CAPRIFOLIACEÆ.—PENTANDRIA MONOGYNIA.

Gen. Char. Calycis tubus ovario adnatus, lineari-pentagonus, 10-striatus, 5-lobus, lobis subæqualibus linearibus lanceolatisve nunc basi connatis. *Corolla* infundibuliformis, fauce ampliata, semi-5-fida, tubo laciniis calycinis sublongiore basi angustato, *lobis* ovato-rotundis subinæqualibus, æstivatione imbricatis. *Stamina* 5, inter se libera, basi corollæ adnata, corolla subbreviora, *antheris* linearibus medio insertis, rima longitudinali utrinque dehiscentibus. *Stylus* filiformis glaber subexsertus. *Stigma* peltato-capitatum. *Ovarium* inferum biloculare. *Ovula* in utroque loculo duplici serie septo placentifero inserta, imbricata compressa.—Frutices *Asiæ orientalis,* foliis *ovatis obovatisve acuminatis breviter petiolatis serratis,* floribus *sessilibus,* cymis *nunc pedunculatis,* bracteis *stipulæformibus,* corolla *purpurea. A. DC.*

WEIGELA *rosea*; ramulis petiolis foliorum costis ovariisque pubescenti-hirtis foliis brevissime petiolatis oblongis acutis acuminatisque basi rotundatis argute serratis supra glabris, floribus sessilibus axillaribus terminalibusque 1–3, ovario petiolo pluries longiore, calyce pilosiusculo, corollæ pubescentis tubo obconico limbo patulo(sub)regulari laciniis rotundatis filamentis glabris. *Lindl.*

WEIGELA rosea. *Lindl. in Journ. of Hort. Soc. v.* 1. *p.* 65. *t.* 6. *Fortune, Herb. Chin. n.* 25, A.

A charming *hardy shrub,* for such it has proved to be in the Royal Gardens of Kew, where it flowers in the open air in May, even as a standard. It is also very ornamental, trained against a wall. As a genus, it is too near *Diervilla,* with which Siebold unites it, while on the other hand, Bunge constitutes of those *Weigelæ* which have the calyx prolonged into a tube above the ovary (as in our species), the genus *Calysphyrum.* Dr. Lindley observes that in *Diervilla* the gland at the base within the corolla adheres to the corolla, but that in *Weigela* it is free. In our specimens it decidedly adheres to the corolla. As a species also, I fear, the plant is too nearly allied to *Weigela* (*Calysphyrum*) *floridum,* Bunge, which like the present, is cultivated in the gardens of the Chinese, and I can really find no difference but what may be fairly attributed to more or less luxuriance of

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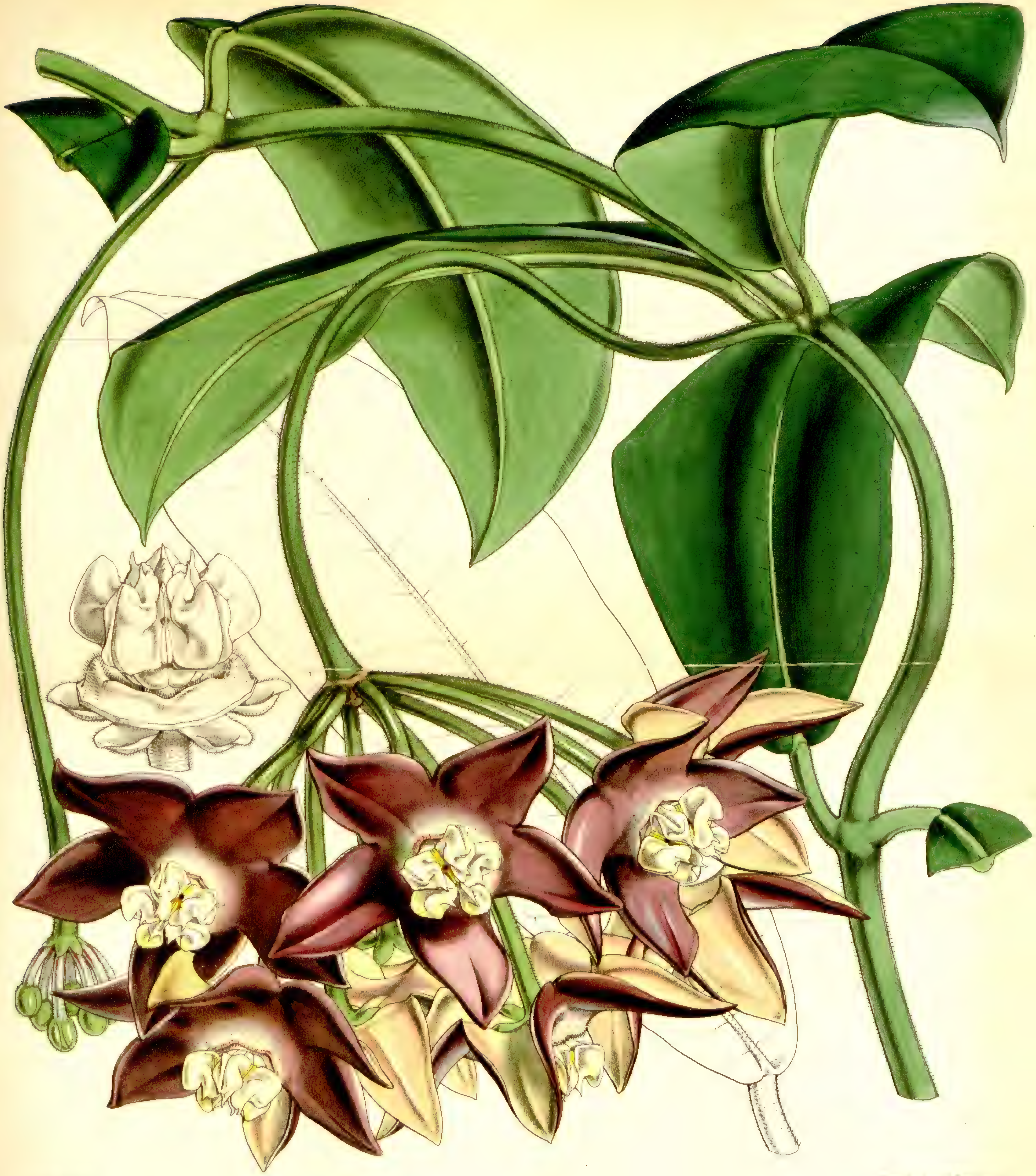
growth. Mr. Fortune has the merit of introducing this shrub to the Gardens of the Horticultural Society, from China, in 1845, and it is now pretty widely dispersed. The corolla is remarkable for the change of colour, rose and white, hence Dr. Lindley aptly compares the colour of the flowers to those of the Chinese Crab, *Pyrus spectabilis*.

Descr. A *shrub* with the habit of *Philadelphus*, the *branchlets*, *petioles*, and nerves of the *leaves* at the back hairy or ciliated. *Leaves* opposite, on short *petioles*, ovate, acuminate, serrate, much veined and reticulated, the apex and base entire. *Flowers* solitary, from the axils of the upper leaves on short branches, or the branch is lengthened out into a peduncle or *spike* of three or four sessile flowers. *Bracteas* small, opposite, subulate, appressed. *Ovary* adherent with the calyx, linear, nearly cylindrical, hairy. *Calyx-tube* prolonged above the ovary and terminating in five long, subulate, ciliated segments. *Corolla* generally deep rose without; within paler rose-colour changing to white, glabrous or nearly so. *Tube* funnel-shaped, with a long downy oblong *gland* attached to one side at the base within. *Limb* nearly regular, of five, rounded, spreading lobes. *Stamens* slightly exserted. *Anther* linear, yellow. *Style* as long as the stamens: *stigma* peltato-capitate, somewhat two-lobed.

Fig. 1. Pistil and part of the calyx and corolla: the latter laid open to show the attached gland:—*magnified*.

4397.



Fitch del. et lith.

Reeve Benham & Reeve imp.

TAB. 4397.

HOYA IMPERIALIS.

Imperial Hoya.

Nat. Ord. ASCLEPIADEÆ.—PENTANDRIA DIGYNIA.

Gen. Char. *Calyx* brevis pentaphyllus. *Corolla* rotata plus minusve alte 5-fida, laciniis planis v. reflexis, æstivatione valvata. *Corona staminea* 5-phylla, foliolis depressis patentibus v. plus minusve gynostegio verticaliter adnatis, carnosis angulo interiore in dentem antheræ incumbentem producto. *Gynostegium* breve. *Antheræ* membrana terminatæ. *Massæ pollinis* basi affixæ, oblongæ, compressæ, conniventes, sæpius margine pellucidæ. *Stigma* muticum cum papilla media obtusa v. subapiculatum. *Folliculi* læves v. appendiculis instructi, subpolypteri. *Semina* comosa.—Frutices *v.* suffrutices *Indici v. Moluccani, rarissime Africani, volubiles, scandentes aut decumbentes,* foliis *carnosis v. coriaceis v. membranaceis,* floribus *umbellatis,* umbellis *extra-axillaribus sæpius multifloris. Dcne.*

HOYA *imperialis;* volubilis, ramis petiolis pedicellisque pubescentibus, foliis (spithamæis et ultra) obovato-lanceolatis coriaceis brevissime acuminatis subobscure parallelim venosis, pedunculo foliis longiore flexuoso-pendulo, umbella pluriflora, floribus maximis purpureo-fuscis nitidis, corollæ lobis cordato-triangularibus marginibus axillas versus præcipue reflexis fauce elevata libera, coronæ stamineæ albæ foliolis in medio arcte approximatis compressis carnosis bilobis lobo exteriore crasso dorso plano, interiore dentiformi lobum ext. æquante.

HOYA imperialis. *Lindl. Bot. Reg.* 1846, *sub. fol.* 68.

HOYA Sussuela. *Roxb. Fl. Ind. v.* 2. *p.* 31?

Dr. Lindley does not say too much of this plant when he remarks, in the place above quoted, "this is the most noble climbing plant we have ever seen:" and this was spoken of the dried specimens we believe, aided by flowers preserved in spirits. With greater truth may it be said of the living plant, now that we have had the pleasure to see it exhibited in full flower at the Horticultural Fête in the Regent's Park Gardens (June, 1848), where it obtained the highest prize given for new plants, and again in the stove of the fortunate possessors of this rarity, Messrs. Lucombe, Pince, and Co., at their Exeter Nursery. A cluster of its flowers is indeed one of the most striking objects we have ever seen; the leaves too are large and handsome. It is a *Hoya* with glossy fleshy leaves of a deep purplish chesnut colour, having the expanded flowers full three inches in diameter! rendered more conspicuous by the ivory-white of the central column of fructification. It was detected in Borneo by H. Low, Jun., Esq., who sent living plants to the Clapton Nursery, where it was purchased by Messrs. Lucombe, Pince, and Co.

"*Hoya imperialis* requires a strong rich soil in order properly to bring out its numerous large thick flower-trusses, which are

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produced from different parts of its twining stem. We have used a compost of equal parts of loam, rotten leaves, and peat, with some *flakes* of dry *half-decayed* dung intermixed, and a liberal supply of sand and broken crocks blended with the whole. The plant which we exhibited was trained round a low circular trellis, not exceeding three feet in height, and independently of the expanded truss from which the drawing was made, there were several others in different stages upon it. We have also one planted in a corner of the stove, which is twining round a single wire over the path, and upon this there are trusses of flowers ready to expand, having ELEVEN flowers on each. This I think will be found to be the best method of treating it, for with its long pendant bunches of large flowers, overhead, it is a most striking object. Each individual flower lasts a very long time in bloom, and is highly fragrant in the evening and all the night.

"I send you herewith some of the dried juice of *Hoya imperialis*, it hardens almost directly after being taken from the plant, and flows so copiously from the wound that I cannot help thinking it may be found available for some useful purpose."—*Pince.*

I think this will prove to be the *Asclepias Sussuela* of Roxburgh, from the Moluccas, who has erred in quoting Rumphius' "*Sussuela,*" and whose specific name is consequently untenable. His character, brief as it is, sufficiently accords, and he describes the corolla as "nearly three inches in diameter." It seems to be a free flowerer and fragrant.

DESCR. A *climber* of quick growth, with rounded, downy, dark green *branches. Leaves* opposite, on short, terete, thick, downy *footstalks*, from six to nine inches long, obovato-lanceolate, acuminulate, coriaceous, thick, firm, slightly convex above, but even (not waved), with obscure, patent, rather distant, parallel *nerves*, dark green above, paler beneath, and downy on the costa. *Peduncle* extra-axillary, much longer than the leaves, terete, downy; flexuose and pendent, terminated by a very large umbel of from nine to fourteen fragrant flowers! each three inches in diameter. *Pedicels* downy. *Calyx* of five, downy, very obtuse, oval *sepals. Corolla* rotate, pale purplish, downy, within rich purple-brown, glossy, pale in the centre: *segments* spreading, cordato-triangular, the *faux* elevated, loose around the column. *Staminal crown* large, projecting, ivory white, fleshy, glossy: *folioles* two-lobed; outer lobe large, oval, compressed, flattened on the back, rather obtuse; the inner forming a sharp erect tooth, as long as the outer lobe.

Fig. 1. Flower, the segments of the corolla being removed:—*magnified.*

(*Mangifera*), *Jamba* (*Eugenia*), and *Averrhoa* are all more or less prized, and the *Barangan*, a kind of Chestnut, and the *Pomegranate* are cultivated.

Generally speaking, the natives of Borneo pay little attention to the fruit-trees: they grow in the jungle, no pains are taken to cultivate them. In Penang and Malacca, where they are more valued, they yield fruit regularly twice a year, and the produce is in greater quantity and of superior quality.

A few remarks may be made upon the system of Agriculture pursued by the Dyaks. It would naturally be supposed that where the main subsistence of the population is derived from grain, considerable care and labour would be bestowed upon rearing it. Such is far from being the case. The soil is so productive, that it yields heavy crops with hardly any more trouble than that of sowing the seed. It is, however, necessary to clear the ground first from the dense forests, and in this work the Dyak is assisted by all his family, the females clearing the brushwood, the slaves and boys felling the large trees. A few dry days suffice to parch the prostrate trunks, and then they are set on fire, and continue to blaze till all is consumed; and the frequent rains which visit Borneo, soon quench the flames and cool the soil. The charred portions of wood are used for making the *Pagar* or fence, which is always needful to protect the future crop from the attacks of deer and wild hogs; while the ashes of the wood are highly valuable in fertilizing the soil. It is customary to select the *Padi* which is to be sown, from the very finest and largest grains of the preceeding season. Three or four seeds are dropped into each hole by the women and children; who dig the holes with a blunt stick, at distances of fifteen to eighteen inches apart every way, and who then cover the grain by scraping over a little earth or ashes with their feet. *Indian Corn* (or maize) is often sown sparingly at the same time, and in the same ground, with the rice; and as it shoots and ripens and is harvested in three months, it causes no injury to the main crop. So, likewise, Gourds, Melons, and Cucumbers are often grown with the *Padi*.

After the field is planted, a hut is always built close by; where the owners may live while the crop requires weeding and during the period of harvest,

Six or seven months from sowing, the *Padi* is fit to be gathered; but as all the ears do not ripen together, as in a European corn-field, so they are severally cut off, day by day, till the whole are gathered; and the process of rubbing out the grain proceeds continually, till all is secured. In small fields, the rice is separated from the stalks by the hand; but in larger farms, the *Padi* is shaken about in a sieve and thus cleared in a more summary manner. The custom of afterwards removing the husk, by pounding the rice in a mortar, prevents its ever keeping long; for the grains being thus broken and their protecting enamel destroyed, they are quickly attacked and spoiled by the weevil. If kept in the husk, (in which state the rice is always called *Padi*,) the grain remains uninjured for many years. It is not uncommon for the soil to produce such enormous crops, that much is lost for want of hands to gather it. When this is the case, the land seems for a while exhausted, and the Dyaks forsake it for a period of seven years, and returning, begin anew the process of felling, clearing, and burning. They assign the custom of their ancestors for giving the ground this certain time of rest.

Tobacco, *Millet*, a species of *Mustard*, the *egg plant*, and a few other vegetables are cultivated, but to a very limited extent, by the Dyaks and Malays.

Among the Dyaks, two plants are held in special reverence, the *Dracæna* and the *Yellow Bamboo*; and these being natives of India may probably have been introduced from thence at the same time as the Brahminical worship. The former, the *Dracæna terminalis*, is planted round the houses together with the *Ivory Bamboo*. Beneath their shade, generally stands a little altar, sometimes roofed to protect it from rain, but oftener uncovered. The tree itself is not worshipped; but the place where it grows is held sacred, and no village is ever without it. Perhaps the graceful stems and lovely foliage first attracted attention, and induced the simple natives to suppose that objects endowed with such beauty must be special favourites of their gods.

Among the Dyaks of the Sarawăk river, the *Pancratium Amboynense*, which they call *Si-kudip*, is highly esteemed. It nowhere grows wild in Borneo, and being a native of the Moluccas and other Islands to the eastward, it seems to argue that the Dyaks brought it with them when they first immigrated into Borneo. Its roots are preserved with jealous care, from the idea that the *Padi* crop will fail, unless one *Si-kudip* be grown in the same field. When the grain is ripe, this bulb is accordingly secured and preserved in the graneries, to be planted again the following year. The *Pancratium* bears a beautiful crown of white and fragrant flowers, on a stalk about a foot high.

Mr. Low mentions that he saw a single specimen in one place, which the owner had honoured by erecting an altar of bamboo over it whereon were laid offerings of food and water. No persuasion could induce the proprietor to part with it.

The order *Amaryllideæ,* to which the *Pancratium* belongs, is almost entirely absent in Borneo. If future observations confirm the belief, that the venerated *Si-kudip* was brought to Borneo when that island was peopled, and that its native country is to the eastward, it will follow that thence came the Dyaks also.

Sketch of the BOTANY *of* DR. A. WISLIZENUS'S EXPEDITION *from Missouri to Santa Fe, Chihuahua, Parras, Saltillo, Monterey, and Matamoras;*

BY

DR. G. ENGELMANN.

[At p. 391 of the London Journal of Botany for the present year, we noticed the Travels of Dr. Wislizenus in the countries above mentioned. We have here the pleasure to give Dr. Engelmann's sketch of the Botany of that Journey, omitting, however, the *descriptions* of the new plants, which will soon find a place in our European systematic works.]

Dr. Wislizenus has intrusted to me his very interesting botanical collections, with the desire that I should describe the numerous novelties included in them. Gladly would I have done so, had not leisure been wanting, and were I not here (in St. Louis) cut off from large collections and libraries. As it is, I can only give a general view of the Flora of the regions traversed, and describe a few of the most interesting new plants collected; with the apprehension, however, that some of them may have been published already from other sources, without my being aware of it.

In examining the collections of Dr. Wislizenus, I have been materially aided by having it in my power to compare the plants which Dr. Josiah Gregg, the author of that interesting work "The Commerce of the Prairies," has gathered between Chihuahua and the mouth of the Rio Grande, but particularly about Monterey and Saltillo, and a share of which, with great liberality, he has communicated to me. His and Dr. W.'s collections together, form a very fine herbarium for those regions.

The tour of Dr. Wislizenus encompassed, as it were, the valley of the Rio Grande and the whole of Texas, as a glance at the map will show. His plants partake, therefore, of the character of the Floras of the widely different countries which are separated by this valley. Indeed, the Flora of the valley of the Rio Grande connects the United States, the Californian, the Mexican, and the Texan Floras, including species or genera, or families, peculiar to each of these countries.

The north-eastern portion of the route traverses the large western prairies, rising gradually from about 1,000 feet above the gulf of Mexico, near Independence, Missouri, to 4,000 feet west of the Cimarron river. The plants collected on the first part of this section, as far west as the crossings of the Arkansas river, are those well known as the inhabitants of our western plains. I mention among others, as peculiarly interesting to the botanist, or distinguished by giving a character to the landscape, in the order in which they were collected, *Tradescantia virginica*, *Phlox aristata*, *Œnothera missouriensis*, *serrulata*, *speciosa*, &c., *Pentstemon Cobæa*, *Astragalus caryocarpus*, (common as far west as Santa Fe,) *Delphinium azureum*, *Baptisia australis*, *Malva Papaver*, *Schrankia uncinata* and *angustata*, *Echinacea angustifolia*, *Aplopappus spinulosus*, *Gaura coccinea*, *Sida coccinea*, *Sophora sericea*, *Sesleria dactyloides*, *Hordeum pusillum*, *Engelmannia pinnatifida*, *Pyrrhopappus grandiflorus*, *Gaillardia pulchella*,* *Argemone Mexicana* (with very hispid stem and large flowers).

The plants collected between the Arkansas and Cimarron rivers are rarer, some of them known to us only through Dr. James, who accompanied Long's expedition to those regions in 1820. We find here *Cosmidium gracile*, Torr. and Gr., which has also been collected about Santa Fe and farther down the Rio Grande; *Cucumis ? perennis*, James, found also near Santa Fe and about Chihuahua, and by Mr. Lindheimer in Texas; the petals being united about two-thirds of their length, it cannot be retained under the genus *Cucumis*; *Hoffmannseggia Jamesii*, T. and G., was also gathered on this part of the journey; several species of *Psoralea*, *Petalostemon* and *Astragalus*; also Torry's *Gaura villosa*, and *Krameria lanceolata; Erysimum asperum*, which before was not known to grow so far south; *Polygala alba*, *Lygodesmia juncea*. Here we also, for the first time, meet with *Rhus trilobata*, Nutt., which, farther west, becomes a very common plant.† A new *Talinum*, which I have named

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* Abundant in the sands about the Arkansas river, with beautiful flowers, but only about six inches high; certainly annual.

† Like many other plants mentioned here, it has been collected in abundant and beautiful specimens by *Mr. A. Fendler*, a young German collector, who has

T. calycinum, was found in sandy soil on the Cimarron. This plant has, like the nearly allied *T. teretifolium* of the United States, a remarkable tenacity of life, so much so that specimens collected, pressed, and "dried," in June, 1846, when they reached me in August, 1847, fourteen months later, grew vigorously after being planted.

Psoralea hypogæa, Nutt., was collected near Cold Spring, and *Yucca angustifolia* from here to Santa Fe.

From Cedar creek the mountainous region commences with an elevation of near 5,000 feet above the Gulf, and extends to Santa Fe to about 7,000 feet. With the mountains we get also to the region of the pines and of the *Cacti*. Dr. Wislizenus has here collected two species of *Pinus*, both of which appear to be undescribed, so that I venture to give now a short account of them. The most interesting one, on account of its useful fruit, as well as its botanical associations, is the nut pine of New Mexico, (Piñon,) *Pinus edulis*, nearly related to the nut pine of north-eastern Mexico, *Pinus osteosperma*, (specimens of which were sent to me by Dr. Gregg, as collected on the battlefield of Buena Vista,) and to the nut pine of California, *P. monophylla*, Torr. and Frem.—these three species being the western representatives of *Pinus Pinea* and *Cembra* of the eastern continent.

The second species, *Pinus brachyptera*, is the most common pine of New Mexico, and the most useful for timber. A third species, *Pinus flexilis*, James, was overlooked by Dr. Wislizenus, but has been collected in fine specimens, by Mr. Fendler, about Santa Fe. Its leaves in fives and pendulous cylindrical squarrose cones assimilate it to *Pinus Strobus*; but the seed is large and edible, as Dr. James has already remarked, and the leaves are not serrulate and much stouter. The Piñones, so much eaten in Santa Fe, appear principally to be the product of *Pinus edulis*. I shall have occasion to speak of three other *pines* when I come to the Flora of the mountains of Chihuahua.

Linum perenne makes its first appearance here, and continues to Santa Fe, as well as the justly so called *Lathyrus ornatus*. Several species of *Potentilla*, *Œnothera*, *Artemisia*, and *Pentstemon* were collected in this district.

Among the most remarkable plants met with were the *Cactaceæ*. After having observed on the Arkansas, and northeast of it, nothing but an *Opuntia*, which probably is not different

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investigated the regions about Santa Fe during last season, (1847,) and has made most valuable and well preserved collections, some sets of which he offers for sale. I shall repeatedly be obliged to refer to him when speaking of the Flora of Santa Fe.

from *O. vulgaris*, Dr. W. came at once, as soon as the mountain region and the pine woods commenced, on several beautiful and interesting members of this curious family, an evidence that he approached the favourite home of the Cactus tribe, Mexico.

On Waggon-mound the (flowerless) specimens of a strange *Opuntia* were found, with an erect, ligneous stem, and cylindrical, horridly spinous, horizontal branches. The plant was here only five feet high, but grows about Santa Fe to the height of eight or ten feet, and continues to be found as far as Chihuahua and Parras. In the latter more favourable climate it grows to be a tree of twenty or thirty, and perhaps forty feet high, as Dr. W. informs me, and offers a beautiful aspect when covered with its large red flowers. It is evidently the plant which Torrey and James doubtfully, though incorrectly, refer to *Cactus Bleo,* H.B.K. It is nearly allied to *Opuntia furiosa,* Willd., but well distinguished from it; and as it appears to be undescribed, I can give it no more appropriate name than *O. arborescens,* the *tree* Cactus, or *Foconoztle*, as called by the Mexicans, according to Dr. Gregg. The stems of the dead plant present a most singular appearance; the soft parts having rotted away, a net work of woody fibres remains, forming a hollow tube, with very regular rhombic meshes, which correspond with the tubercles of the living plant.

The first *Mammillaria* was also met with on Waggon-mound, a species nearly related to *M. vivipara* of the Missouri, and also to the Texan *M. radiosa,* (Engelm. in Plant. Lindh. inedit.,) but probably distinct from either. Mr. Fendler has collected the same species near Santa Fe.

On Wolf creek the curious and beautiful *Fallugia paradoxa,* Endl., looking like a shrubby *Geum,* was found in flower and fruit; also a (new?) species of *Streptanthus,* and an interesting *Geranium,* which I named *G. pentagynum,* because of its having its five styles only slightly united at base, while most other *Gerania* have them united for about two-thirds or more of their length.

In the prairies about Wolf creek, in an elevation of about 6,000 and 7,000 feet, the smallest of a tribe of *Cactaceæ* was detected, numerous species of which were discovered in the course of the journey south and south-east: several others have also been found in Texas. I mean those dwarfish *Cerei,* some of which have been described with the South American genus *Echinopsis,* or have been referred alternately to *Cereus* or *Echinocactus,* and which I propose to distinguish from all these under the name of *Echinocereus,* indicating their intermediate position between *Cereus* and *Echinocactus*: they approach more

4398.

TAB. 4398.

CLEMATIS INDIVISA; var. LOBATA.

Undivided-leaved Clematis; lobed variety.

Nat. Ord. RANUNCULACEÆ.—POLYANDRIA POLYGYNIA.

Gen. Char. (*Vide supra*, TAB. 4259.)

CLEMATIS *indivisa*; dioica, floribus paniculatis sepalis 5–7 ellipticis utrinque sericeo-lanatis stamina duplo superantibus, foliis ternatis, foliolis petiolulatis ovatis integris v. lobatis, adultis utrinque glabris.

α. foliolis integris.

CLEMATIS indivisa. *Willd. Sp. Pl. v.* 2. *p.* 1291. *De Cand. Prodr. v.* 1. *p.*
Richard, *Fl. Nov. Zel. p.* 288. *All. Cunn. in Ann. Nat. Hist. v.* 4. *p.* 259.

CLEMATIS integrifolia. *Forst. Prodr. n.* 231. *non Linn.*

β. foliolis lobatis. (TAB. NOSTR. 4398.)

This is really an ornamental and showy greenhouse plant, native of New Zealand, discovered by Forster, during Cook's Voyage, and of which seeds were sent to us by the Rev. Wm. Colenso from the same country. Mr. Allan Cunningham found it on the margin of the woods on the shores of the Bay of Islands, and on the Hokianga river. It quite festoons the trees and shrubs with its dense foliage and large panicles of flowers. With us it flowered in April, 1848. The lobed-leaved plant is evidently only a variety of that with undivided leaves.

DESCR. A scandent *plant*, with very lengthy, terete, slightly striated and pubescent *branches*. *Leaves* opposite, ternate. *Petioles* connate with the base of the opposite pairs; about two inches long: *petiolules* about an inch long, performing the functions of tendrils. *Leaflets* two or three inches long, subcoriaceous, ovate or oblong-ovate, in the normal state entire at the margin, more or less downy, when mature glabrous above, subcordate at the base, in our variety deeply lobed, almost pinnatifid at the margin, the lobes broadly ovate, rather acute. *Panicles* copious, axillary, large, often a foot long, divided sometimes from the base by opposite branches, which are striated and downy, bracteated at their origin, and there are two bracteas near the middle of the pedicels. *Flowers* diœcious; *male* only in our plant, drooping. *Perianth* large, white and cream-colour, of from five to seven (usually six) spreading, oblong, large, striated, silky (on both sides) *sepals*. *Stamens*, at first forming a compact column, with yellow filaments and deep rose-coloured *anther*. The outer ones gradually diverge and lengthen till they are about half as long as the sepals, and then the anthers are deep purple.

4399.

& Reeve imp

Tab. 4399.

IXORA lanceolaria.

Lance-leaved Ixora.

Nat. Ord. Rubiaceæ.—Tetrandria Monogynia.

Gen. Char. (*Vide supra*, Tab. 4325.)

Ixora *lanceolaria*; foliis brevi-petiolatis lanceolato-acuminatis basi latioribus glabris, stipulis lanceolato-subulatis, corymbis trichotomis, floribus (virescenti-albidis) laxiusculis, ovario basi bibracteolato, segmentis calycinis linearibus erectis tubo longioribus, corollæ tubo gracili lobis lineari-oblongis obtusis demum marginibusque reflexis, filamentis exsertis, antheris lineari-subulatis basi bifidis, stylo longius exserto, stigmate clavato apice bifido.

Ixora lanceolaria. *Colebr. in Roxb. Fl. Ind. p.* 387. *ed. Wall. v.* 1. *p.* 397. *De Cand. Prodr. v.* 4. *p.* 488. *Spreng. Syst. Veget. v.* 1. *p.* 409. *Wight et Arn. Fl. Penins. Ind. Or. p.* 429. *Wight, Ic. Pl. Ind. Or. t.* 827.

A graceful shrub, received from the East Indies, by favour of the Calcutta Botanic Garden, without any name, but which accords so well with the description and figure above quoted of *I. lanceolaria*, that I have little hesitation in referring it to that species. It requires the heat of a stove for its successful cultivation, and then it flowers with us in April. It is an inhabitant of Travancore, where it was first found by Mr. Colebrooke, and of Courtallam, where Dr. Wight detected it, but who speaks of it as a rare plant. In our individual the flowers have a greenish tint, which are elsewhere described as white.

Descr. A *shrub* with us in the young (but flowering state) not yet two feet high, but which, according to Roxburgh, attains a height of from five to seven and more feet, erect, with dichotomous, scarcely spreading, terete, slender *branches*. *Leaves* patent, often a span long, on short petioles, lanceolate, acuminate, somewhat coriaceous, broader at the base, with the nerves parallel and almost at right angles from the midrib. *Stipules* between lanceolate and subulate, rather small, erect. *Corymb* terminal (but often with a young branch arising on each side) pedunculate; the *peduncle* bearing two small leaves like those of the stem. *Branches* trichotomous. *Flowers* rather lax, greenish white. *Calyx* with the *tube* globose; a pair of subulate *stipules* at its base; the *segments* linear, erect, longer than the tube. *Corolla* with the tube three-quarters of an inch long, slender, uniform, lobes linear-oblong, patent, at length reflexed: the sides of the lobes also reflexed. *Filaments* a little exserted: *Anther* linear-subulate, bifid at the base, reflexed. *Style* longer than the tube of the corolla, geniculated below the clavate *stigma,* which is bifid at the apex.

Fig. 1. Flower. 2. Pistil:—*magnified.*

4406.

Fitch del. et lith.

Reeve Benham & Reeve imp.

TAB. 4400.

ANASTATICA HIEROCHUNTICA.

Rose of Jericho.

Nat. Ord. CRUCIFERÆ.—TETRADYNAMIA SILICULOSA.

Gen. Char. *Silicula* longitudinaliter dehiscens, ventricosa, valvis concavis intus transverse *septula* horizontalia semina separantia gerentibus, extus ad apicem appendiculatis. *Petala* obovata. *Semina* immarginata. *Cotyledones* planæ, accumbentes, septo parallelæ. *De Cand.*

ANASTATICA *hierochuntica.*

ANASTATICA hierochuntica. *Linn. Sp. Pl. p.* 895. *Jacq. Hort. Vind. t.* 58. *Ait. Hort. Kew. ed.* 2. *v.* 4. *p.* 79. *De Cand. Prodr. v.* 1. *p.* 185. *Spreng. Syst. Veget. v.* 3.

AMOMUM Rosa Sanctæ-Mariæ. *Lonic. Bot.* 258.

Many synonymes might be added to these just adduced, if they were worthy of occupying the space, indicative of the sacredness of this plant, or of the superstitious veneration in which it was, and still is, held by the ignorant people inhabiting the country where it exists: such as "Rosa de Hiericho" of Dalechamp, "Rosa hierochuntica" of Commelin, &c. Respecting this, however, the true "*Rose of Jericho,*" much ignorance prevails in our own country, and of late years among us the name has been incorrectly transferred to two very different plants (possessing similar hygrometric properties), as widely differing from this, as all are different from any real Rose, and coming too from widely different countries:—one, the *Lycopodium lepidophyllum* from western Mexico; the other, the *Capsules* of certain South African species of Fig-marigold (*Mesembryanthemum*).

The Rose of Jericho (as little or less like a Rose than a Cabbage) is a plant humble and insignificant in appearance, yet the attention of Eastern travellers has long been directed to it on account of the hygrometric property of the old withered annual stems, which are rolled up like a ball in dry weather, uprooted by the storms of the deserts in Syria and Egypt, and drifted about by the winds. If rain falls, the branches are restored to

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their original direction: and again, in dry weather, they become involute: and this property the plant retains after many years. The most absurd fables have been circulated respecting the virtues of this plant, and greedily believed by the vulgar. The plant is rare in cultivation, and only preserved by annually securing the seeds. Our figures are made in part from specimens out of Mr. Borrer's garden, at Henfield, and in part from the Royal Garden of Kew.

Descr. An annual *plant*, branching from the top of its somewhat fusiform *root*; everywhere hoary, with dense stellated hairs. *Leaves* spathulate, the lower ones entire, the upper ones remotely toothed. *Racemes* lateral, generally arising from a little above the branch of a fork, erect, rigid, almost spiny, bearing seven or eight nearly sessile inconspicuous flowers. *Calyx* of four stellato-pubescent *sepals*. *Petals* orbicular, clawed, longer than the sepals. *Stamens* six, tetradynamous, four long, two short, toothless. *Anthers* oblong, yellow. *Hypogynous glands* four. *Ovary* stellato-pubescent, two-valved, each *valve* spuriously two-celled: the valves in the state of the ovary obscurely auricled, which auricles, in maturity, are protruded into two large, erect, concave appendages, as large as the valves themselves. *Style* short. *Stigma* dilated, umbilicated. *Silicule* remarkable for its two large orbicular ears. Each *cell* has two transverse almost orbicular seeds.

The Plate represents a living flowering specimen, and a withered, dried one, as driven about the deserts:—*natural size*. Fig. 1. Flower. 2. Petal. 3. Flower from which the sepals and petals are removed. 4. Young fruit. 5. A ripe fruit. 6. The same with one valve removed. 7. Valve. 8. Seed. 9. Embyro:—*magnified*.

4461.

Fitch del. et lith.

Reeve, Benham & Reeve imp.

TAB. 4401.

HIBISCUS FEROX.

Stinging Hibiscus.

Nat. Ord. MALVACEÆ.—MONADELPHIA POLYANDRIA.

Gen. Char. Vide supra, TAB. 4329.

HIBISCUS *ferox*; subarboreus superne subramosus aculeolatus, foliis petiolatis amplis nitidis orbiculari-cordatis 5–7-lobatis, subtus præcipue villosis, lobis acutis inciso-spinuloso-dentatis, stipulis cordato-acuminatis herbaceis appressis, pedunculis axillaribus geminatis unifloris, involucri patentis foliolis lanceolatis sub- 10, calyce elongato tubuloso pentagono hispidissimo apice 5-lobo demum fructifero inflato, corollæ (luteæ) petalis spathulatis spiraliter tortis, stigmate exserto magno 5-lobo.

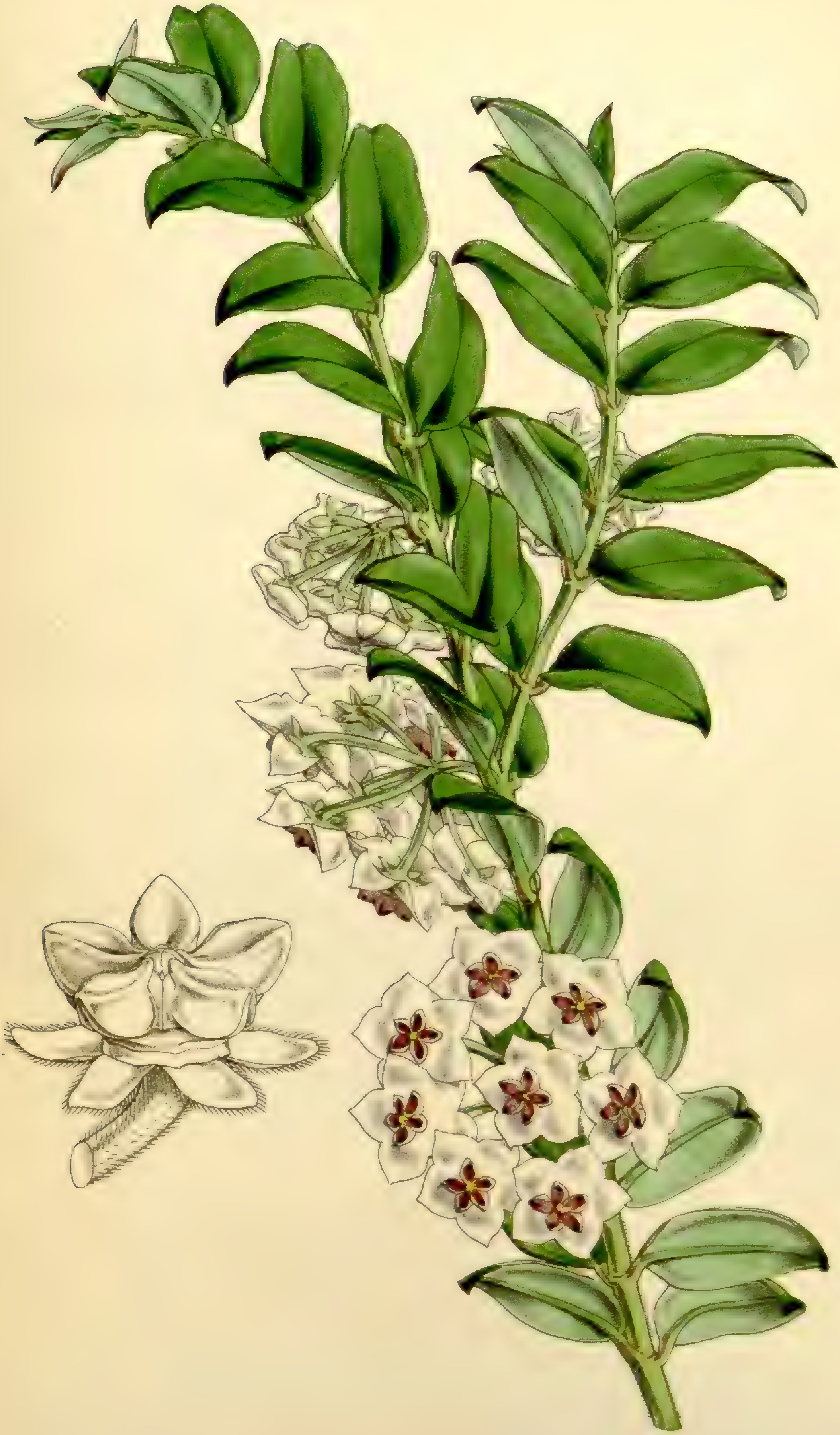
One of the most distinct of the many forms of *Hibiscus* and remarkable for the copious tuberculated aculei, often tipped with red. It seems to have escaped the observation of every traveller till Mr. Purdie met with it near Iratcho in New Grenada, and sent home specimens and seeds. The whole plant, he observed, is "full of irritating spines." In four years time the plant has with us attained a height of many feet, clothed with such copious, tuberculated, rigid, short prickles as to give the appearance rather of some virulent nettle than an emollient *Hibiscus*. It is treated as a stove plant, and flowered in May, 1848.

DESCR. An upright growing, arborescent *shrub*, leafy, chiefly at the summit, and there slightly branched: the *branches* stout, soft and succulent, often deeply tinged with red-purple, and these and every part of the leaves, peduncles, involucre, and calyx, clothed more or less with hairs and aculei, the latter seated on a tubercle and not unfrequently tipped with red. *Leaves* on rather long, stout *petioles*, ample, orbiculari-cordate, shining, five- to seven-lobed, the lobes sharp and grossly toothed, the teeth spinulose. *Stipules* rather large, herbaceous, cordate, acuminate, appressed. *Peduncles* geminate, shorter than the petiole, single-flowered. *Involucre* of ten spreading, lanceolate, acuminate leaflets. *Calyx* two inches long, reddish, pentagonal, tubular, with five appressed teeth or lobes, enlarging with the fruit and becoming inflated.

Corolla twice as long as the calyx, fulvous-yellow. *Petals* spathulate, spirally twisted, the apices spreading, obscurely toothed. *Stamens* with the copious anthers forming a cylinder beneath the large five-lobed *stigma*: *style* filiform, longer than the corolla. *Ovary* ovate, five-furrowed, five-celled, cells many-seeded with two rows of *seeds* in each cell.

Fig. 1. Pistil. 2. Section of ovary:—*magnified.*

4402.



Fitch, del et lith.

R. B & R. imp.

Tab. 4402.

HOYA bella.

Beautiful Hoya.

Nat. Ord. Asclepiadeæ.—Pentandria Digynia.

Gen. Char. (*Vide supra*, Tab. 4397.)

Hoya *bella*; suffruticosa diffusa (vix scandens) copiose foliosa, foliis parvis ovatis acutis brevissime petiolatis uninerviis supra intense viridibus subtus pallidis. umbellis lateralibus brevi-pedunculatis, calycis foliolis ellipticis, corolla rotata acute 5-angulato-lobata, coronæ stamineæ foliolis ovatis truncatis supra concavis purpureis subtus pallidis.

The most lovely of all the *Hoyas*, to which a figure (as in the case of most flowers with much white) is little calculated to do justice. It cannot be called a climber, but the branches are diffuse, copiously leafy, so that the leaves (unlike those in *H. carnosa*) form a dark back-ground to the delicate umbels of flowers, with leaves in shape resembling those of a Myrtle, and flowers more lively and differently formed from those of *Hoya carnosa*, and most deliciously scented. The corolla is a purer white, and the corona a deeper purple: resembling an amethyst set in frosted silver. It is a native of the Taung Kola mountain, Moulmein, and has been imported, through their collector, Mr. Thomas Lobb, by Messrs. Veitch and Sons of Exeter, where treated like an *Æschynanthus*, or an epiphyte, we had the pleasure of seeing this " first gem of the air " blossoming in great perfection, in June, 1848. It is a free bloomer, and the flowers last many days in high beauty.

Descr. *Stems* branching, weak, but copiously leafy; *leaves* opposite, scarcely so big as those of the large-leaved Myrtle, and nearly of the same shape, ovate, but fleshy, one-nerved, dark green above, paler beneath. *Peduncles* lateral, about as long as the leaf, each bearing a corymb of from eight to ten flowers. *Calyx* a little downy, of five elliptical, spreading *sepals*. *Corolla* rotate, convex, nearly white, waxy, with five acute angles rather than

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lobes. Alternating with these angles, and occupying the centre of the flower, are the five leaflets of the *staminal crown*, ovate or rather cymbiform, concave and deep-purple on the upper face, pale below.

Fig. 1. Calyx and staminal crown :—*magnified.*

4403.

Fitch del et lith.

R. P & B. imp

TAB. 4403.

SIPHOCAMPYLOS MANETTIÆFLORUS.

Manettia-flowered Siphocampylos.

Nat. Ord. LOBELIACEÆ.—PENTANDRIA MONOGYNIA.

Gen. Char. (*Vide supra*, TAB. 4178.)

SIPHOCAMPYLOS *manettiæflorus*; erectus humilis suffruticosus, foliis brevissime petiolatis oblongo-ovatis obscure serratis reticulatis supra nitidis, pedunculis solitariis axillaribus unifloris bibracteatis folio 3–4-plo brevioribus, flore longitudine foliorum, ovario turbinato-sulcato, calycis laciniis subulatis serratis, corollæ tubulosæ lateraliter compressæ (bicoloris) limbo subæquali (flavo) laciniis erecto-patentibus ovato-lanceolatis.

SIPHOCAMPYLOS nitidus. *Hortulan.* (non *Pohl.*)

This very pretty plant, for the bright red and yellow corollas contrast well with the glossy dark green foliage, comes to the English gardens by way of Belgium, and we are indebted for the possession of the species to our friend Mr. Low of the Clapton Nursery. It is probably derived from New Grenada, and was received with the name of *Siphocampylos nitidus*: but this appellation is, we should think, given to it in gardens in ignorance of the existence of a *S. nitidus* of Pohl (from Brazil), with which this has nothing to do. It is a free flowerer, and it has been in blossom all the spring, summer, and autumn in our stove.

DESCR. A small, erect, firm-growing *plant*, not exceeding a foot in height, suffruticose, leafy, branched. *Leaves* alternate, on short petioles or nearly sessile, from one and a half to nearly two inches long, rather rigid, oblongo-ovate, obscurely serrated, reticulated, glabrous and glossy above, more rugose from reticulations and somewhat hoary beneath. *Peduncles* from the axils of the leaves, short, not one third as long as the leaf (together with the flower, a little longer than the leaf), bearing two small bracts near the middle. *Calyx* a little downy; its *tube*, including the inferior ovary, turbinate: the segments erecto-patent, remotely serrated, subulate, one-fourth the length of the corolla. *Corolla* slightly curved, tubular for the greater part of its length, but singularly compressed laterally, two-coloured, red for two-thirds

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of its length from the base, the rest yellow. *Limb*, with five segments, ovato-lanceolate, nearly equal, scarcely spreading, the cleft above scarcely deeper than between the rest of the segments. *Anthers* terminated by tufts of hair. *Stigma* two-lobed. *Stamens* and *style* included.

Fig. 1. Calyx, stamens, and pistil:—*magnified.*

4404

Fitch del et lith.

R B & R imp.

Tab. 4404.

IMPATIENS REPENS.

Creeping Balsam.

Nat. Ord. Balsamineæ.—Pentandria Monogynia.

Gen. Char. Antheræ 5, nempe 3 biloculares, ante petalum superius 1-loculares. *Stigmata* 5 coalita. *Capsula* prismatico-teretiuscula elongata, valvis a basi ad apicem extrorsum revolutis. *Cotyledones* planiusculæ. *Pedunculi* axillares ramosi 1-multiflori. *Capsula* glabra. *Folia* alterna. *De Cand.*

Impatiens *repens*; herbacea succulenta ramosissima decumbenti-repens, foliis alternis petiolatis subreniformi-cordatis obsolete serratis, pedunculis axillaribus solitariis unifloris petiolo longioribus, floribus luteis, sepalis superioribus orbicularibus, inferioris cucullati calcare brevi incurvo apice incrassato, petalis lateralibus bilobis lobis inæqualibus, ovario hirsuto.

Impatiens repens. "*Moon, Cat.*" *Wight, Ill. of Ind. Bot. p.* 160. *t.* 61.

The finest of all the yellow-flowered Balsams with which we are acquainted, and for the introduction of which into our stoves we are indebted to Mr. Gardner, of the Botanic Garden, Peradenia, Ceylon. It was first detected by Mr. Moon, in shady vegetable soil at "Four Korles," in that island: then by Mrs. General Walker, and by Mr. Gardner at Allagala, at an elevation of 4,000 feet. It is easily increased by cuttings, flowers in May, June, and July, and will probably during the summer months be found to succeed best in the greenhouse. Of this genus, of which Linnæus only knew seven species, mostly from imperfect figures, Dr. Wight considers that upwards of one hundred are natives of the East Indies alone! That gentleman observes it is there eminently an alpine genus, delighting in a cool and moist climate; hence it is unknown on the plains of Coromandel, though not unfrequent in Mysore; only abounding in the Peninsula on the higher hills, participating in the western Monsoon, which enjoy, during the hot months, a moderate range of temperature, with a very humid atmosphere.

Descr. Apparently an annual, but readily kept up by cuttings, very copiously branched, straggling, procumbent, and rooting where it touches the ground. *Branches* succulent, striated.

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Leaves alternate, rather small, on petioles scarcely longer than themselves, cordate, approaching to reniform, glabrous, acute, obsoletely serrated. *Peduncles* axillary, solitary, single-flowered, longer than the leaves. *Flower* large, yellow. *Calyx* slightly hairy. Lateral *sepals* small, ovato-lanceolate, green: two upper ones large, yellow, rotundate, forming a helmet: lower sepal large, yellow, cucullate, ending in a short horn, which is much incurved and clavate at the point. Lateral *petals* two-lobed, the lobes very unequal, the upper ones rounded. *Filaments* white, clavate, ciliated. *Ovary* hairy.

closely to *Cereus,* in which genus they, as well as the *Echinopsis,* should perhaps be included as subgenera.

The species mentioned above is distinguished from all others known to me by its yellowish-green flowers, the others having crimson or purple flowers. I have named it, therefore, *Echinocereus viridiflorus.*

A careful examination of the seeds of numerous *Cactaceæ,* has indicated to me two principal divisions in that family: 1. Cotyledons, more or less distinct, directed with their edges to the edge, (or towards the umbilicus,) and with their faces to the flattened side of the seed; when curved, accumbent. 2. Cotyledons, mostly very distinct, foliaceous, directed with their edges to the faces, and with their faces to the edges of the seed (or towards the umbilicus); when curved, incumbent, and often circular or spiral.

The first class comprises *Mammillaria,* with a straight embryo; and doubtless, also, *Melocactus,* seeds of which, however, have not been examined by me; and *Echinocactus,* mostly with a curved embryo. The second class includes *Echinocereus* with a nearly straight embryo, and very short cotyledons; *Cereus,* with a curved embryo, and foliaceous incumbent cotyledons, (probably also *Echinopsis* and *Pilocereus,* and perhaps *Phyllocactus* and *Epiphyllum*;) *Opuntia,* with a circular or spiral embryo, (circular and with a larger albumen in all *Opuntiæ cylindraceæ*; spiral and with a much smaller albumen in all *Opuntiæ ellipticæ,* examined by me,) and very large cotyledons. *Rhipsalis* and *Pereskia* may also belong here, but were out of my reach.

The flowers of all species belonging to the first class, with the doubtful exception of some *Mammillariæ,* make their appearance on the growth of the same year. Those of the second class produce the flowers always upon the growth of the next preceding or former years. The first class may, therefore, be distinguished by the name of *Cactaceæ parallelæ* (from the direction of the cotyledons), or *apicifloræ* (from the position of the flowers). The second class can be named, in a corresponding manner, *Cactaceæ contrariæ,* or *laterifloræ.*

Echinocereus is principally distinguished from *Cereus* proper by its low growth; its short, more or less oval stems, which are frequently branching at base, and thereby cæspitose; by the diurnal flowers, with short tubes; by the nearly straight embryo, with short cotyledons. From *Echinopsis,* to which some species have been referred, it differs also by the short-tubed diurnal flowers, and by the numerous filaments being adnate to the lower part of the tube. The species *Echinocereus* inhabit Texas and the northern parts of Mexico, where *Cerei* proper are very rare. They extend even farther north than the *Echinocacti*, but appear to be excluded from the old limits of the United States, where the Cactus family is represented only by some *Opuntiæ* and *Mammillariæ*. The southern limits of the *Echinocerei* are unknown to me, but I doubt whether they extend far in that direction; the nearly-related *Echinopsides*, on the contrary, appear to be exclusively inhabitants of South America, especially the La Plata countries.

As I am speaking of the geographical distribution of the *Cactaceæ*, I may as well add here that *Mammillariæ* were found throughout the whole extent of Dr. Wislizenus's tour, and that at least four species occur in Texas. *Echinocacti* were observed only south of Santa Fé, and from there to Matamoros, but none on the highest mountains, which were occupied by *Opuntiæ*, *Mammillariæ*, and *Echinocerei*; two *Echinocacti* have been found in Texas. Only two species of true *Cerei* were seen; one of a peculiar type about Chihuahua, and another near the mouth of the Rio Grande, which does not appear to differ from the wide-spread *C. variabilis*, Pfeiff. *Opuntiæ ellipticæ*, as well as *cylindraceæ*, were observed from New Mexico to Matamoros, and species of both are also found in Texas. *Melocacti*, *Phyllocacti*, and other genera of *Cactaceæ*, not mentioned above, were not met with.

The notes and collections of Dr. Wislizenus confirm the opinion of that acute observer and succesful cultivator of *Cactaceæ*, Prince Salm-Dyck, viz: that most species of this family have a very limited geographical range, the most striking exception being those belonging to the genus *Opuntia*.

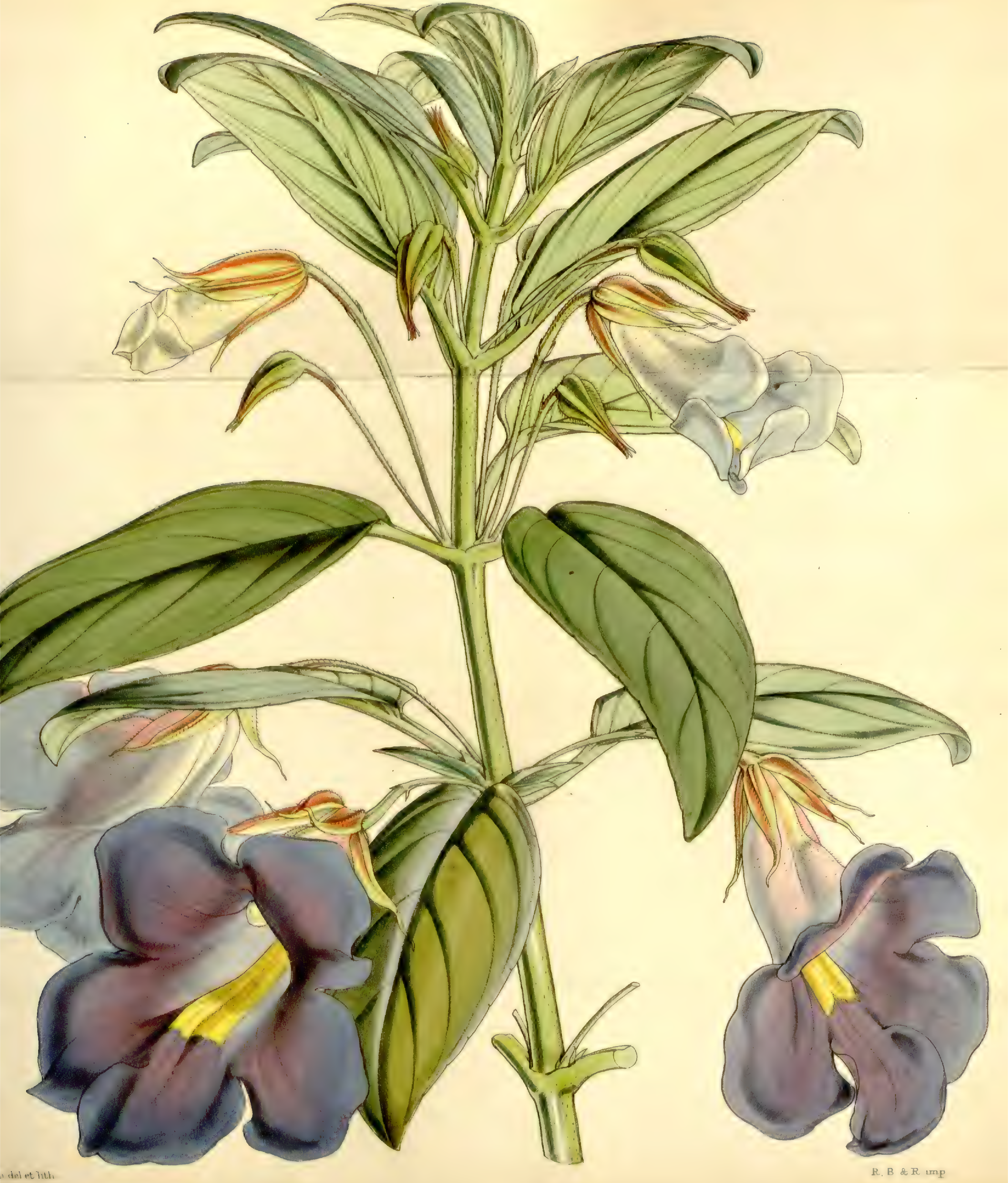
On the same day two other species of *Echinocereus* were found in pine timber, both with beautiful deep red flowers.

We shall have occasion to speak of others hereafter.

After leaving Santa Fé, Dr. Wislizenus directed his course southward along the Rio Grande. The country was partly mountainous and rocky; partly, and principally along the river, sandy; on an average between 4,000 and 5,000 feet above the ocean. Here we find again some of the plants of the plains and of Texas, as *Polanisia trachysperma*, T. and G.; *Hoffmanseggia Jamesii*, T. and G. An interesting *Prosopis* with screw-shaped legumes nearly allied to *P. odorata*, Torr. and Frem., of California, was the first shrubby mimoseous plant observed during the journey, a tribe which hereafter becomes more and more abundant; *Mentzelia* sp. *Cosmidium gracile*, *Eustoma*, *Heliotropium currasavicum*, *Maurandia antirrhiniflora*, a beautiful

Continued after Int 4410.

4405.



del et lith

R. B & R. imp

TAB. 4405.

CHIRITA MOONII.

Mr. Moon's Chirita.

Nat. Ord. CYRTANDRACEÆ.—DIDYNAMIA ANGIOSPERMIA.

Gen. Char. (*Vide supra*, TAB. 4182.)

CHIRITA *Moonii*; subsericeo-villosa, caule suffruticoso, ramis obtuse tetragonis, foliis 2–4-nisque petiolatis ovato-lanceolatis apice acutiusculis obsolete glanduloso-serratis, pedunculis axillaribus solitariis v. binis petiolo 3-plo longioribus, sepalis lanceolato-subulatis carinatis, corolla magna extus pubescente.

CHIRITA Moonii. *Gardn. in Mem. on Didymocarp. of Ceylon, p.* 19.

MARTYNIA lanceolata. *Moon, Cat. Ceyl. Pl. p.* 45.

There have been few of the many visitors to the Royal Gardens of Kew, during the season of 1848, who have not been struck with the beauty of the present plant, as exhibited in our stoves. Two to three feet in height, its leaves rather copious, opposite or verticillate, of a pale, pleasant green, the flowers mostly whorled and larger and more delicate and as highly coloured as the largest flowered *Gloxinia*: and some or other of these plants blossoming throughout the whole summer. The species is a native of Ceylon: Mr. Moon was the discoverer of it at "Four Korles," and it appears in his Catalogue of Ceylon plants under the name of *Martynia lanceolata*. It exists in my Herbarium among the plants of Mrs. General Walker, and Mr. Gardner detected it in rocks near the summit of the Hantane range and rightly referred it to the genus *Chirita*, attaching to it the name of the original finder.

DESCR. It forms an erect, simple or slightly branched, suffruticose *plant*, two to three feet high. The *branches* rounded or obscurely tetragonal. *Leaves* opposite, or two to four in a whorl, patent, ovato-lanceolate, petiolate, rather acute, scarcely acuminate, obscurely glanduloso-serrate, penninerved, clothed with compact silky down, most conspicuous beneath. *Petioles* an inch long. *Peduncles* axillary, solitary or two together, more than half as long as the leaf, single-flowered, thickened upwards, and bearing a minute pair of opposite, subulate, appressed *bracts* above the middle. *Calyx* rather large, divided nearly to the base into five, erect, appressed, lanceolato-subulate, carinate, downy *sepals*. *Corolla* large, almost four inches long from the base to the extremity of the lower lip: the *tube* ventricose, curved a little upwards, and subcampanulate: the *mouth* ample: *limb* two-lipped, spreading, of five, subequal, rounded *lobes* (sometimes only four); the upper lip two-, the lower three-lobed. The outside of the corolla is silky, pale purplish: *limb* deeper purple, paler within the throat, and with a broad yellow abrupt line on the lower side of the tube. *Stamens* and *style* included, resembling those of *C. Walkeræ* (Tab. 4327).

4406.

Fitch del. et lith.

TAB. 4406.

PASSIFLORA AMABILIS.

White-crowned Passion-flower.

Nat. Ord. PASSIFLOREÆ.—MONADELPHIA PENTANDRIA.

Gen. Char. Calycis tubus brevissimus, *faux* corona filamentosa multiplici ornata. *Bacca* sæpius pulposa, rarius membranacea. *De Cand.*

PASSIFLORA *amabilis;* caule gracili terete, foliis membranaceis ovatis acutis integerrimis, stipulis ovatis acuminatis integerrimis petiolo glanduloso brevioribus, pedunculo solitario unifloro sub flore involucrato, involucri 3-phylli foliolis ovato-rotundatis majusculis, sepalis petalisque conformibus (intus rubris), coronæ filamentis subquadriseriatis (albis) perianthio brevioribus.

PASSIFLORA amabilis. *Hortulan.*

All that we can state with certainty of the history of this Passion-flower is, that it was received at the Royal Gardens from Mr. M'Koy of Liege, under the name here given. It is very unlike any species yet figured or described as far as we can learn; and it may possibly be a hybrid, one of whose parents may be *Passiflora alata*, judging from the peculiar colour of the sepals and petals; while the involucre more resembles that of *P. quadrangularis*: but the slender terete stem is at variance with both. It flowers in the stove in May.

DESCR. A climber of not luxuriant growth, having a terete *stem*. *Leaves* alternate, petiolate, ovate, very acute, entire, rather membranous and wavy; *petiole* glandular. *Stipules* shorter than the petiole, ovate, acuminate, entire. *Tendril* axillary, simple. *Peduncle* longer than the petiole, solitary, single-flowered, bearing below the calyx three large, broad, membranous, roundish-ovate, reticulated *involucral leaves*. *Calyx* and *petals* alike, oblong, obtuse, bright brick red within, greenish externally. *Filamentous crown* white, in four series, shorter than the perianth: two outer series the longest; the filaments subulate, fleshy, unequal (the outermost smaller, often dotted with black towards the apex): two innermost series small; crowded, upright, each constituting a circle of short, slender acicular filaments, equal in length, the outer erect, the inner almost horizontal, lying over the mouth of the short tube of the flower. *Ovary* on a long stipe.

4407.

TAB. 4407.

AQUILEGIA LEPTOCERAS.

Slender-spurred Columbine.

Nat. Ord. RANUNCULACEÆ.—POLYANDRIA PENTAGYNIA.

Gen. Char. Cal. 5-sepalus deciduus colorato-petaloideus; *petala* 5 superne hiantia bilabiata, *labio superiore* magno plano, *interiore* minimo, deorsum producta in *calcaria* totidem cava apice callosa inter sepala exserta. *Ovaria* 5. *Capsulæ* totidem erectæ ∞-spermæ stylis acuminatæ. *De Cand.*

AQUILEGIA *leptoceras*; foliis radicalibus biternatis, subtus præcipue glaucis, foliolis late cuneatis lobatis, calcaribus longissimis rectiusculis gracilibus limbo cuneato subduplo longioribus, sepalis rhombeo-lanceolatis.

AQUILEGIA cærulea. *James in Long's Exped. to the Rocky Mount. v.* 2. *p.* 204 *et p.* 345. *(Engl. Ed.) Torr. in Rocky Mount. Pl. p.* 164. *Torr. et Gr. Fl. N. Am. v.* 1. *p.* 30.

AQUILEGIA leptoceras. *Nutt. Journ. Acad. Philadelph. v.* 7. *p.* 8.

AQUILĔGIA macrantha. *Hook. et Arn. in Bot. of Beech. Voy. p.* 317. *p.* 72.

Raised in the Royal Gardens from seeds, collected by Mr. Burke in the Snake country of the Rocky Mountains; abundant about Fort Hall. James, its original discoverer, detected it "between the head waters of the branch of the Platte called Defile Creek and those of the northern tributaries of the Arkansas: and Mr. Tolmie received specimens from a hunter, collected between Henry's and Fish Rivers. All these localities are in elevated regions of the Rocky Mountains, in about lat. 40°; and the species seems to be very local. Remarkable as it is for the large size of the flowers and the uncommon length of the spurs, we fear that as seen in our figure, upon a white ground, and cultivated as a solitary specimen, it possesses few attractions. Yet growing in masses, as it does on its native hills, it must present a very striking appearance; for James, in Long's Travels, asserts that "it forms a splendid acquisition to the Flora of the United States;" and Mr. Burke in his letter from Fort Hall, dated Sept. 3rd, 1845, says, "I found near Medicine River a most beautiful Columbine, which I have never seen elsewhere, growing at the foot of a hill in rich loamy soil in great abundance: the flowers very large, beautifully white, variously tinged above with light blue. In my opinion it is not only the Queen of Columbines, but the most beautiful of all herbaceous plants, and I never felt so much pleasure in finding a plant before." We must therefore endeavour to increase it, so as to fill an entire bed with it, and we think it is eminently suited to such an object. In the name I have adopted for this plant I trust that I shall receive the sanction of the American botanists. A. *cærulea* has assuredly the right of priority, and Mr. James does speak of the flowers as "blue:" but Nuttall describes them as "ochroleucous;" and, among our numerous specimens living and dried, white, with an ochroleucous or purplish green, rarely with a blue tinge (and never wholly blue or approaching to it) are the prevailing colours;—the name therefore of *cærulea* tends to mislead, while that of *leptoceras* is unexceptionable.

DESCR. *Root* perennial. *Stem* herbaceous, 1–1½ foot high. *Leaves* chiefly radical, and those petiolate; *petioles* long, twice ternate, glaucous, especially beneath; the *leaflets* broadly cuneate, divided generally with three obtuse lobes, which are either simple or slightly divided again. Other smaller leaves spring from the branchings of the stem, ternate, nearly sessile, especially the uppermost ones. *Flowers* large, paniculate, often three inches across, their colour white, or cream-white, with a tinge of blue, more generally of purplish-green. *Calyx* of five spreading, rhomboid-lanceolate *sepals*, much longer than the petals. These latter are cuneate, cucullate below, each ending in a very long, nearly straight, slender, subulate *spur*, capitate at the extremity and twice as long as the limb. *Stamens* numerous, shorter than the petals. *Anthers* yellow. *Styles* shorter than the stamens.

4408.

Tab. 4408

IAMBOSA Malaccensis.

Malay-Apple.

Nat. Ord. Myrtaceæ.—Icosandria Monogynia.

Gen. Char. Calycis tubus turbinatus basi attenuatus, fauce ultra ovarium producta dilatata obovata, limbo 4-fido, lobis subrotundis. *Petala* 4, apice faucis inserta, lata concava obtusa. *Stamina* numerosissima petalis longiora libera stricta. *Stylus* filiformis. *Stigma* simplex, acutiusculum. *Ovarium* pluriloculare multiovulatum. *Fructus* 1–2-spermus calyce ampliato et baccato grumoso-carnosus apice umbilicatus. Semen angulatum, *cotyledonibus* carnoso-corneis crassis marginibus conferruminatis, *radicula* subcylindrica intra cotyledones latente.—Arbores *Indicæ.* Folia *opposita, brevissime petiolata pellucido-punctata.* Cymæ *laterales et terminales folio multo breviores paucifloræ simplices,* pedicellis *lateralibus oppositis et* 1-*terminali.* Flores *ad apicem pedicellorum articulati ebracteolati ampli.* Fructus *magni edules. De Cand.*

Iambosa *Malaccensis*; foliis coriaceis oblongis s. ovato-oblongis acuminatis basi in petiolum crassum attenuatis, cymis lateralibus subsessilibus fasciculatis, floribus rubris, fructu magno turbinato.

Iambosa Malaccensis. *De Cand. Prodr. v.* 3. *p.* 286. *Wight et Arn. Fl. Penins. Ind. Or. v.* 1. *p.* 332.

Eugenia Malaccensis. *Linn. Sp. Pl. p.* 672. *Roxb. Fl Ind. v.* 2. *p.* 483. *Ic. in E. J. C. Mus. t.* 1067. *Wall. Cat. n.* 3611. *Smith, Ex. Bot. t.* 61.

Iambosa purpurascens. *De Cand. Prod. v.* 3. *p.* 286.

Myrtus Malaccensis *et* M. macrophylla. *Spr. Syst. Veget. v.* 2. *p.* 483, 484.

Iambosa nigra. *Rumph. Amb. v.* 1. *t.* 37 *et* 38. *f.* 1.

Nati-Schamba. *Rheed. Hort. Malab. v.* 1. *t.* 18.

Native of the Malay Islands. Cultivated, also, in the West Indies on account of its esculent, but, as it is said, not very highly flavoured fruit: and hence we suspect, and also from a notion that the true *Malaccensis* had a white flower, De Candolle has considered the excellent figure given by Sir James Smith, from Mr. Hibbert's collection, a new species, to which he gave the name of *purpurascens.* Our very handsome plant, sent to Kew by Dr. Wallich from the Calcutta Garden, flowers in the stove in June.

November 1st, 1848.

Descr. Our plant forms a charming *shrub*, six to eight feet high, with large, glossy, coriaceous, oblong or ovato-oblong, acuminate *leaves*, tapering at the base into a short very thick *footstalk*. The *cymes* of richly coloured purple-red flowers, are sessile or nearly so, arising from the old wood just above the point where a pair of leaves have fallen, the *rachis* and *pedicels* short and thick; hence the flowers appear fascicled. *Ovary* inferior, turbinate. *Calyx-limb* of three to five or six rounded, unequal, concave, appressed *lobes*. *Petals* four, very concave, orbicular-oval. *Stamens* very numerous. *Filaments* red, much longer than the petals. *Anthers* very small, globose. *Style* filiform, rather shorter than the stamens, surrounded at the base by an elevated four-sided ring.

Fig. 1. Ovary and calyx, from which latter part of the ring is removed:—*magnified*.

Fitch del. et lith.

R. B. & R. Imp.

TAB. 4409.

ARNEBIA ECHIOIDES.

Echium-like Arnebia.

Nat. Ord. BORAGINEÆ.—PENTANDRIA MONOGYNIA.

Gen. Char. Calyx fere 5-partitus basi post anthesin subcampanulatus. *Corolla* tubo elongato infundibuliformis fauce nuda, lobis subrotundis. *Antheræ* tubo insertæ inclusæ. *Stylus* apice bifidus et stigmata ideo 2 subrotunda sæpius subbifida et in massam subglobosam 4-lobum aggregata. *Nuculæ* 4 ovatæ basi truncatæ imperforatæ.—Herbæ *orientales, habitu* Lithospermorum, *sed stigmate dicephalo nunc* 4-*lobo distinctæ. De Cand.*

ARNEBIA *echioides*; caulibus erectis simplicibus pilis mollibus patentibus brevibus tectis, foliis sessilibus pube brevi molli tomentosis obtusiusculis, radicalibus oblongo-obovatis, caulinis obovato-spathulatis, spicis terminalibus, bracteis foliaceis ovato-oblongis basi dilatatis calyces æquantibus, calycis 5-partiti lobis lineari-attenuatis, corollæ tubo calyce duplo fere longiore, limbo subinæquali, fauce 5-maculata, lobis subrotundis.

ARNEBIA echioides. *Alph. De Cand. Prodr. v.* 10. p. 96.

LYCOPSIS echioides. *Linn. Sp. Pl. p.* 199. *Lehm. Asperif. p.* 270.

ANCHUSA echioides. *Bieb. F. Cauc. v.* 1. *p.* 123.

LITHOSPERMUM erectum. *Fisch. et Mey. Ind. Hort. Sem. Koch, in Linnæa,* 1843, *p.* 304.

ECHIOIDES orientalis Buglossi folio. *Buxb. Cent. v.* 1. *t.* 1.

We follow M. Alphonse De Candolle, who in a late volume of the Prodromus has referred this plant to *Arnebia,* although, as may be seen by our figure, it does not accord in the character of the style: but M. De Candolle remarks: "non *Lithospermum* ex fauce non plicata, stylo apice bifido (rather stigmate bifido), fauce supra tubum gracilem ampliata patente et toto habitu; non *Lycopsis* nec *Anchusa* ex fauce nuda et nuce." The species, however, whatever may be its genus (for in an extensive natural family there will always be a difficulty in expressing the limits of genera), is a native of the Caucasian Alps and of Armenia: is quite hardy, flowering in the open border, or in a pot, in June and July, where it makes a very pretty appearance with its scorpioid spikes of large yellow flowers, with five deep purple,

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well-defined spots at the throat. These spots, however, in the cultivated plant, are sometimes obsolete. We have raised plants in the Kew Gardens from seeds sent by Dr. Fischer of St. Petersburg.

DESCR. *Root* fusiform, woody, throwing up two or more erect, leafy, herbaceous *stems*, about a span or more high, downy with short hair. *Leaves* spreading, somewhat hoary (especially when dry) from the rather soft pubescence, all sessile; *radical leaves* large, obovato-oblong, *cauline ones* obovato-lanceolate, all of them rather obtuse and becoming smaller upwards. The stems terminate in a branched, scorpioid, leafy *spike* of large yellow *flowers*; these *leaves* or *bracteas* ovate. *Calyx* cylindrical, hairy, cut almost to the base into five, erect, linear, obtuse *segments*. *Corolla* between funnel- and salver-shaped, the *mouth* spreading; the *tube* nearly twice as long as the calyx, hairy within; the *limb* cut into five nearly equal, rounded *lobes*, having a dark orbicular purple spot at the sinus of each pair of lobes. *Stamens* small, included. *Style* shorter than the tube. *Stigma* capitate, bifid.

Fig. 1. Flower. 2. Tube laid open, showing the stamens and pistil:—*magnified.*

4410.

TAB. 4410.

BURTONIA VILLOSA.

Villous Burtonia.

Nat. Ord. LEGUMINOSÆ.—DECANDRIA MONOGYNIA.

Gen. Char. (*Vide supra*, TAB. 4392.)

BURTONIA *villosa*; ramis foliis calycibusque breviter villosis, foliolis breviter petiolulatis lineari-subulatis obtusiusculis muticis margine revolutis demum glabrescentibus punctato-scabris, pedunculis axillaribus folia subæquantibus calyce brevioribus basi medioque bibracteolatis. *Meisn.*

BURTONIA villosa. *Meisn. in Lehm. Plant. Preiss. v.* 1. *p.* 41.

It will be recollected that under our TAB. 4392, we promised soon to give a figure of a third rare species of *Burtonia*, recently raised from Mr. Drummond's Swan River seeds, by Messrs. Lucombe, Pince, and Co., no less beautiful than those already figured; and we here redeem our pledge. The flowers are indeed the largest of all the species, and more varied in colour, from the conspicuous yellow spot at the base of the standard. The plants flowered in May, in the Exeter Nursery.

DESCR. A small Heath-like *shrub*, with the leaves horizontally patent, and, as well as the branches, clothed more or less copiously with hairs; *leaflets* linear, obtuse, appearing to be terete from the closely revolute margins. *Flowers* numerous from the axils of the leaves at the extremity of the branches, and forming apparently an oblong leafy spike, the leaves and peduncles being in a great measure concealed by the flowers. *Peduncle* shorter than the leaves, bearing two minute, subulate, appressed *bracts* a little above the middle. *Calyx* hairy; the *tube* campanulate, the five spreading nearly equal *lobes* ovate, acute. *Corolla* rich purple, but less deep than B. *pulchella* (TAB. 4392). The *wings* whitish at the base, and the *standard* with a nearly orbicular, pale yellow spot above the short *claw*. *Stamens* ten, free. *Ovary* ovate, hairy: *style* subulate, laterally compressed, hairy on the upper margin: *stigma* acute. *Fruit* a globose, hairy, one-seeded *legume*, scarcely longer than the calyx, and terminated by the subulate style curved upwards.

Fig. 1. Leaf. 2. Section of ditto. 3. Flower with the petals removed. 4. Wing. 5. Pistil. 6. Seed vessel; *natural size*:—all except fig. 6 more or less *magnified*.

large flowered *Datura*, *Abronia*, *Hendecandra Texensis*, and many others. Near Olla the first specimens appeared of a new species of *Larrea*, the first and most northern form of the shrubby *Zygophyllaceæ*, more abundant farther south. In the same neighbourhood the Mezquite tree or shrub was first met with, probably *Algarobia glandulosa*, T. and G. From this place the Mezquite was abundantly found down to Matamoros, but the specimens collected appear to indicate that there are at least two different species.

On the next day, near Sabino, an interesting Bignoniaceous shrub was collected for the first time, undoubtedly the *Chilopsis* of Don, which farther south appears more abundantly. Its slightly twining branches, willow-like slender glutinous leaves, and large paler or darker red flowers, render it a very remarkable shrub. Dr. Gregg mentions it under the name "*Mimbre*," as one of the most beautiful shrubs of northern Mexico. The character given by Don, and that of De Candolle, appear defective, though I cannot doubt that both had our plant in view. From the very complete specimens obtained both by Dr. Wislizenus and Dr. Gregg, I am enabled to correct those errors.

Near Albuquerque a curious *Opuntia* was observed; it evidently belongs to the *Opuntiæ cylindraceæ*, but has short clavate joints, which make the name of *O. clavata* most appropriate. A singular plant, with the habit of a *Ranunculus*, but nearly related to *Saururus*, was also found in this neighbourhood among grass on the banks of the Rio Grande. The genus has been described by Nuttall from specimens collected by him in California, but whether his *Anemopsis Californica* is specifically identical with the new Mexican plant, remains to be seen, as this last has regularly six-leaved involucres, about six stamens, and is perfectly glabrous.

While the last mentioned plants indicate that we approach another botanical region, we are surprised to meet here with *Polygonum amphibium*, common in the old and in the new world, and *Cephalanthus occidentalis*, so widely diffused in the United States.

The famous desert, the Jornada del Muerto, furnished, as was to be expected, its quota of interesting plants. A *Crucifera* near *Biscutella* of Europe, but with very short styles and white flowers, was here met with abundantly. I had considered it as the type of a new genus, when I found in Hooker's London Journal of Botany, of February, 1845, Harvey's description of his new Californian genus *Dithyrea*, which probably must be made to embrace our plant as a second species.

A new species of *Talinum*, with single axillary flowers, was found for the first time in the Jornada, but was again collected further south, towards Chihuahua. *Dalea lanata, Centaurea Americana, Sapindus marginata,* and a *Bolivia,* probably identical with a new Texan species, brought to mind the Flora of Arkansas and Texas, while the gigantic *Echinocactus Wislizeni* reminds us again that we are approaching the Mexican plateau. This enormous Cactus attains generally a height of one and a half to two feet; specimens three feet high were rare, but one specimen was found which measured four feet in height, and near seven feet in circumference; its top was covered with buds, flowers, and fruits, in all stages of development. In size it ranges next to *Echinocactus ingens,* Zucc., specimens of which five to six feet high, were collected near Zimapan, in Mexico. Another Mexican Cactus, *E. platyceras,* Lem., is said to grow six, and even ten feet high, and proportionately thick. *E. Wislizeni* is therefore the third in size in this genus.

From the same neighbourhood a beautiful *Mammillaria* was sent in dried, as well as living specimens. It appears to be one of the few *Mammillariæ longimammæ,* though it differs in having purple, not yellow flowers, and stiffer spines. By the name I have given it, *M. macromeris,* I intended to indicate the unusually large size of different parts of the plant, the tubercles, the spines. and the flowers.

In the same region a strange plant was obtained for the first time, but then without flowers or fruit, and which, to the casual observer, appeared as curious as it is puzzling to the scientific botanist; single spiny sticks or stems having a soft and brittle wood, and a great deal of pith in the centre, one or more from the same root, but always without branches, eight to ten feet high, not more than half an inch thick, frequently overtopping the brush among which they were found, only towards the top with a few bunches of already yellow leaves. In the following spring the splendid crimson flowers of this plant were found by Dr. W. between Chihuahua and Parras, and to Dr. Gregg I am indebted for mature fruit, collected near Saltillo and Monterey. The plant proved to be a *Fouquiera,* two species of which have been found in Mexico by Humboldt; one of them, the *F. formosa,* a branching shrub, was only known in the flowering state; the other, *F. spinosa,* a spinous tree, only in fruit. The structure of the ovary of the first appeared to differ so much from that of the capsule of the second, that it was afterwards deemed necessary to distinguish both generically, and the second constituted then the genus *Bronnia.* Having both flowers and fruit of a third

Fouquiera, I am enabled to solve the difficulty to some extent, and prove the necessity of re-uniting *Bronnia* with *Fouquiera.* The flower of *Fouquiera splendens,* as I have named the northern plant, is that of a true *Fouquiera,* while the fruit is nearly that of *Bronnia!*

Towards El Paso a curious Capparidaceous plant was collected, which appears to be nearly allied to the Californian *Oxystylis* of Torrey and Frémont, and forms with it a distinct group in that Family, approaching very closely to *Cruciferæ,* as has been remarked by Professor Torrey.

I have named this new genus *Wislizenia,* in honour of its discoverer, who has, though unaided and often embarrassed in different ways, done so much towards the advancement of our knowledge of those northern provinces of Mexico—the first naturalist, it is believed, who explored the regions between Santa Fé, Chihuahua, and Saltillo. From *Oxystylis* it is principally distinguished by its long stipitate ovary and capsule, which latter is reflexed, and by the elongated racemes; it may, however, have to be united with that genus.

On the mountains about El Paso, another of those cylindraceous *Opuntiæ* was found, but much thinner and more slender than both species, mentioned previously. To judge from an imperfect description it must be nearly related to the Mexican *O. virgata,* Hort. Berol. I have given it the name of *O. vaginata,* as the straw-coloured loose sheaths of the long spines are very remarkable. A new *Echinocereus* was also collected here, which, on account of its dense covering with small spines, I have named *E. dasyacanthus.* I have in cultivation one of the largest specimens seen by Dr. Wislizenus, which is one foot high. In this neighbourhood, *Opuntia Tuna,* Mill., was seen for the first time, and this is perhaps the most northern limit of that extensively diffused species, as well as of *Agave Americana,* another common Mexican plant. Both were found in greater perfection near Chihuahua, and from there constantly down to Monterey and the mouth of the Rio Grande; the *Opuntia* appears to extend also high up in Texas.

Together with these a *Dasylirion,* perhaps the same as the Texan species, was found here, and afterwards again near Saltillo.

From El Paso to Chihuahua, the road lies in part through a dreadfully arid sandhill district, where a peculiar *Martynia* was observed, and further on, through a lovely country, which, at that season, (August,) after the annual rains, was covered with a luxuriant vegetation. The elevation of the country is here between 4,000 and 5,000 feet above the gulf.

The rare *Cevallia sinuata*, which Dr. Gregg has also sent from Monterey, was found in this part of the journey. Here also occurred a perennial species of *Linum*, with yellow petals, so far, in America, the only perennial yellow flowering *Linum*; it is distinguished by its long aristate sepals, whence the name. Several *Oenotheræ*, not seen before, now made their appearance; different species of *Gilia*, a number of *Nyctagineæ*, several *Asclepiadaceæ*, *Malvaceæ*, *Cucurbitaceæ*, *Compositæ*, and others, were here collected; including a number of new species, which only want of time and references have for the present prevented me from describing. Near Lake Encinillas another *Martynia* was found, which, in its foliage, comes nearer to *M. proboscidea*, but is readily distinguished by its purple flowers. A beautiful yellow-flowering Bignoniaceous shrub, probably *Tecoma stans*, Juss., seen more frequently further south, was observed for the first time near Gallejo spring. Shrubby *Algarobiæ* were seen more plentifully, as also some other *Mimoseæ*.

Here would be the proper place to introduce a notice of the several species of *Yucca* found by Dr. Wislizenus. But, unfortunately, the labels of the specimens were partly lost, so that it is impossible at this time to arrange leaves, flowers, and fruits properly. Certain it is that several species besides *Yucca angustifolia*, mentioned above, were seen; that the leaves of all of them have filamentose edges, some with very fine, others with very coarse fibres on their margin; that the majority bear juiceless capsules with very thin, paper-like seeds, but that one species produces an edible succulent fruit with very thick seeds. Fortunately the seeds collected by Dr. W. arrived here in the best condition, and some have already germinated, so that we may hope to raise some of these species. *Yucca aloifolia*, of the southern United States and Mexico, is said also to bear an edible fruit, but has serrulate leaves; we have, therefore, different species of *Yucca* with edible fruits, which may constitute a peculiar section in this genus.

The soil appeared to be too fertile here for the production of *Cacti*; and with the exception of some *Opuntiæ*, the only species collected between Paso and Chihuahua, about 100 miles south of the former place, was *Cereus Greggii*, which was peculiarly interesting, as it is probably the most northern form of *Cereus* proper. The specimens sent for cultivation by Dr. W. were unfortunately dead when they arrived here, and neither flower nor fruit had been obtained; but Dr. Gregg has collected the same species near Cadena, south of Chihuahua, in flower, from which I completed the description. I could not have given it a more

Episodes of Insect Life.

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AND

DESCRIPTION OF ILLUSTRATIONS.

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BUTTERFLIES IN GENERAL.

Various species just risen and bursting from their chrysalidan shrouds, mount towards the skies or repose upon everlasting flowers.

The lowest Butterfly to the left is the Peacock, *Vanessa Io*, that above is the Common Copper, *Lycæna Phlæas*, the next above is the Common Blue, *Polyommatus Alexis*, and that to the left is the same, showing its under-wing painting. Above these, upon the sprig of flowers, is the Lady of the Woods, *Anthocharis Cardamines*, and over this to the right is the Brimstone, *Gonepteryx Rhamni*, having the Hair-Streak Purple, *Thecla Quercus*, to the left and the Silver-washed Fritillary, *Argynnis Paphia*, above. In the centre is the beautiful Swallow-Tail, *Papilio Machaon*, to the right below is the Red Admiral, *Vanessa Atalanta*; perched above, showing its under-wing, is the small Garden White, *Pontia Rapæ* ; over that, a little to the left, is the Meadow Brown, *Hipparchia Janira*, and uppermost upon the flowers is the Common Copper, *Lycæna Phlæas* exhibiting its under-wing. Suspended to the branches beneath are numerous chrysalides, one of which exhibits the small Tortoise-shell Butterfly recently emerged.

To the symbolic meaning of this picture it is scarcely needful to point, for in the Book of Nature, so truly described to be a Book of Emblems, the history of the fugacious Butterfly, as typifying the flight of the immortal soul, stands foremost for clearness, for exactitude, for beauty, and for solemn import.

Title-Vignette.

So issue forth the Seasons.

First we have WINTER in his merriest mood, represented by the Cricket, bedecked with Christmas holly, and alive with fun and jollity. By his right hand he holds the Brimstone Butterfly, emblem of SPRING, primrose of papilions in habits and in hue. Beneath, the jocund Grasshopper linked to the above by a vernal wreath, figures the bright SUMMER and in the glowing Peacock Butterfly, rich in her velvet train as the autumnal flowers she frequents, we welcome AUTUMN, bearing the ripe sheaf and presenting her merry associate with the fruit of the vine.

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In her hours of supposed privacy.

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"Such mistresses dare never come in rain
"For fear their colours should be washed away;"

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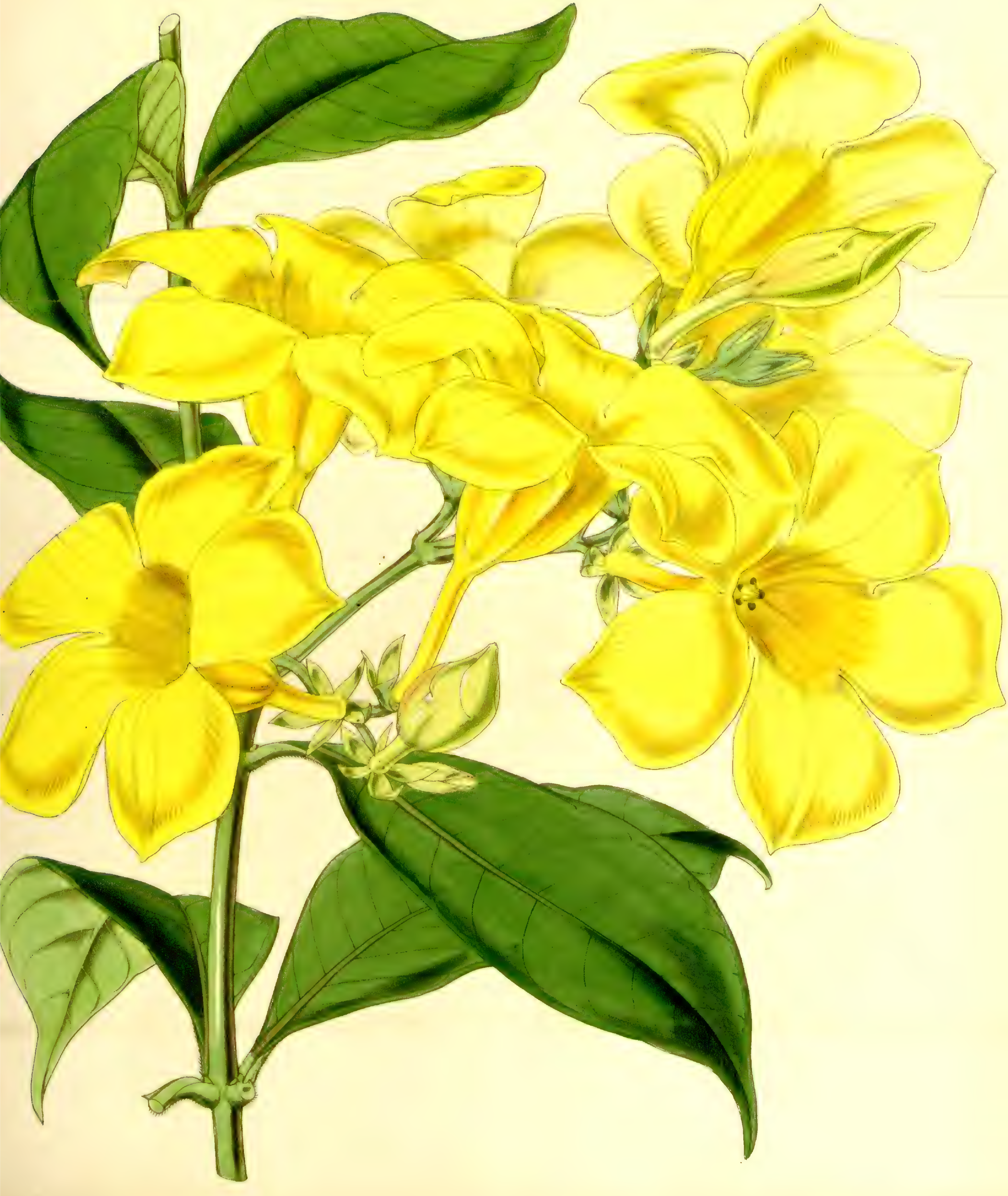

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TAB. 4$\overset{4}{9}$11.

ALLAMANDA AUBLETII.

Aublet's Allamanda.

Nat. Ord. APOCYNEÆ.—PENTANDRIA MONOGYNIA.

Gen. Char. (*Vide supra*, TAB. 4851.)

ALLAMANDA *Aubletii*; subscandens glabra, foliis oblongo-obovatis acuminatis brevi-petiolatis, glandulis minutis acutis, paniculis multifloris aphyllis, calycis lobis lanceolatis patentibus, corollæ maximæ tubo gracili elongato faucem amplo-campanulatam æquante, limbi lobis rotundatis acutis hinc basi oblique unidentatis.

ALLAMANDA Aubletii. *Pohl. Bras. v.* 1. *p.* 74.

ALLAMANDA grandiflora? *Lam. Dict. v.* 4. *p.* 601.

ORELIA grandiflora. *Aubl. Guyan. v.* 1. p. 271. t. 106.

We have the pleasure of figuring, from the rich collection of Messrs. Lucombe, Pince and Co., of the Exeter Nursery, what we consider the true *Orelia grandiflora* of Aublet, which has been confounded with the *Allamanda cathartica* of Linnæus, and which, as has been remarked under our TAB. 4851, Dr. Pohl distinguished by the name of *Aubletii*. M. Alphonse De Candolle, it is true, has again united them, but surely incorrectly. The nearest affinity of this is, doubtless, with *A. Schottii*, especially that variety of it figured at our TAB. 4851. But when seen growing together, the whole habit, foliage, and inflorescence are very different. Our present species has shorter leaves, broader above the middle, more copious flowers on the leafless panicle, of a larger size though paler colour, with a wider throat to the corolla and more acute lobes to the limb.—It is a stove plant, and though too weak to support itself, it cannot be called a climber. It was introduced by seeds from Brazil, and raised by Mr. Stanton (who has pointed out its distinguishing characters,) at the same time with *A. Pohlii*; and flowers during the summer months.

DESCR. A weak, but scarcely climbing *shrub*, with terete, glabrous *branches*, and opposite or ternate, obovato-oblong,

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shortly petiolate, acuminated *leaves*; *petioles* ciliated at the back. *Panicles* axillary and terminal, leafless, many-flowered: *flowers* of a very large size, pale yellow. *Calyx* of five spreading, lanceolate, pale green *segments*, not a third the length of the narrow portion of the tube of the corolla. *Corolla* with the lower half of the tube very narrow; upper half expanding into a large and broad bell-shaped *mouth*, striated and almost plaited. *Limb* very large, of five subrotund, but acute, spreading *lobes*, furnished with an oblique tooth on one side at the base.

4412.

TAB. 4~~9~~412.

PLEROMA KUNTHIANUM.

Professor Kunth's Pleroma.

Nat. Ord. MELASTOMACEÆ.—DECANDRIA MONOGYNIA.

Gen. Char. (*Vide supra*, TAB. 4362.)

PLEROMA *Kunthianum*; ramulis tetragonis petiolisque adpresse villosis, foliis petiolatis ovato-ellipticis acutis 5-nerviis integerrimis supra setuloso-scabris subtus villosis sericeis adpressis pallidioribus, pedicellis hispidis axillaribus et terminalibus, calycis tubo campanulato rigide setoso bracteato, lobis ovatis magnis, bracteis amplis imbricatis coloratis deciduis.

LASIANDRA Kunthiana. *De Cand. Prodr. v.* 3. *p.* 128.

PLEROMA Kunthianum. *Paxt. Mag. Bot. v.* 11. *p.* 125 *cum Ic.*

It is saying much to remark that this is equal in beauty to the *P. elegans* of Mr. Gardner, figured in this work at TAB. 4362. The flowers are as large, but of a very different colour: the stem and branches are acutely four-angled, not terete, as in that species, and the young branches and even leaves, and especially the bracteas, are tinged with bright red, which adds to the rich colouring of the plant. It was raised at the Botanic Garden of Glasgow, from seeds which had been received from Mr. Gardner while on his journey in Brazil, and the Royal Gardens of Kew owe the possession of it to Mr. Murray. It flowers in July and requires the heat of the stove.

DESCR. An erect, handsome-growing *shrub*, copiously branched: the *branches* tetragonal, rough to the touch, with copious appressed hairs. *Leaves* of a peculiarly rich velvety green, opposite, petiolate, petioles often deep red, between ovate and elliptical, acute, the older ones obtuse, five-nerved, with numerous transverse nervelets, above velvety to the eye, but rough with copious short hairs, beneath paler and clothed with silky hairs. *Peduncles* solitary, generally terminating a short branch, single-flowered. *Flower* very large. *Calyx-tube* ovate or turbinate, setose, concealed by very large, coloured, imbricated, deciduous *bracteas; limb* of five large, green, ovate, acute *segments*. *Petals*

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rich deep purple-red, obcordate, very broad, spreading. *Stamens* ten, five large and five small. *Filaments* subulate, hairy: *anthers* sickle-shaped, ending in a long tube, wrinkled on the upper edge, and two-horned at the base. *Style* curved, and, as well as the anthers, red.

Fig. 1. A large and a small stamen:—*magnified.*

4113

TAB. 4413.

ASCLEPIAS DOUGLASII.

Douglas' Asclepias.

Nat. Ord. ASCLEPIADEÆ.—PENTANDRIA DIGYNIA.

Gen. Char. Cal. alte 5-partitus, sepalis ovatis parvis patulis. *Corolla* alte 5-partita, laciniis præfloratione valvata, primo patulis dein refractis. *Corona staminea* summo gynostegio imposita, 5-phylla, foliolis cucullatis, cucullis ovatis v. superne dilatatis semper e fundo processum aversum corniformem stigmati incurvum emittentibus. *Antheræ* membrana terminatæ. *Massæ pollinis* compressæ, apice attenuato affixæ, pendulæ. *Stigma* depressum muticum. *Folliculi* pergamacei, læves v. ramentacei, v. spinis innocuis onusti. *Semina* comosa.—Herbæ *perennes*, Americanæ, *præcipue* Am. Sept.; folia *opposita, verticillata, raro alterna;* umbellæ *interpetiolares. Dcsne.*

ASCLEPIAS *Douglasii*; pubescenti-tomentosa, caule simplici, foliis oblongis ovato-oblongisve acutis subtus tomentosis, pedunculis brevibus pedicellisque tomentosis, umbellis multifloris, corollæ laciniis ovatis acutis extus tomentosis, coronæ foliolis ovatis acuminatis cornu longioribus inferne marginibus utrinque unidentatis.

ASCLEPIAS Douglasii. *Hook. Fl. Bor. Am. v.* 2. *p.* 53. *t.* 142. *De Cand. Prodr. v.* 8. *p.* 564.

One of the finest of the genus *Asclepias*: a native of the west side of the Rocky Mountains, where it was detected by Douglas, after whom it was named. Our plant is raised from seeds sent in 1846 from North-west America by Mr. Burke, then Collector for the Royal Gardens. It first flowered in the Nursery of Messrs. Lucombe, Pince, and Co., Exeter, in whose garden it made a fine appearance in the open border. It continues a long time in flower.

DESCR. An erect, herbaceous *plant*, a foot or a foot and a half high, with rather stout, rounded, generally unbranched, woolly *stems*. *Leaves* opposite or ternately whorled, a span long, varying from almost ovate, or ovato-lanceolate (more rarely subcordate) to oblong, acute, downy above, woolly beneath. *Peduncles* short, and as well as the pedicels woolly. *Umbel* many-flowered. *Flowers* crowded, reddish purple, tinged with green. *Calyx* rather small: *segments*

of the corolla large, ovate, acute, concave. *Coronal leaflets* very large, at first erect, then spreading, narrow, ovate, much acuminated, below dilated on each side into a blunt toothed *horn* short, incurved.

Fig. 1. Flower. 2 and 3. Coronal leaflets :—*magnified.*

4414.

TAB. 4414.

DIPLADENIA UROPHYLLA.

Taper-pointed Dipladenia.

Nat. Ord. APOCYNEÆ.—PENTANDRIA MONOGYNIA.

Gen. Char. *Cal.* 5-partitus, lobis basi interne utrinque 1–2-glandulosis; glandulis nunc ligulatis v. squamosis. *Corolla* hypocraterimorpha vel tubo basi cylindrico et superne infundibuliformi, circa originem staminum hispida; fauce exappendiculata; lobis æstivatione sinistrorsum convolutis. *Antheræ* subsessiles, in superiore parte tubi v. medio aut sub media parte ubi tubus latior sit insertæ, sagittatæ, medio stigmati adhærentes, apice acuminatæ v. membrana acuta terminatæ. *Glandulæ nectarii* 2, cum ovariis alternantes, obtusæ, singulæ e duabus connatis plerumque constantes, quinta glandula in *Echite* uno ex ovariis opposita deficiente. *Ovaria* 2, nectario sæpius longiora, *Stylus* 1. *Stigma* globulosum, inferne membrana reflexa umbraculiformi (an semper?) stipatum. *Folliculi* et *semina* ut in *Echite.*—Frutices *scandentes, v. sæpius suffrutices erectæ,* Americæ meridionalis *incolæ*; foliis *oppositis integris, sæpe angustis, utrinque basi setis glandulisve pluribus loco stipularum stipatis,* pedicellis *axillaribus nunc in racemum terminalem approximatis,* floratione *centripeta;* corollis *sæpius purpureis. Dcsne.*

DIPLADENIA *urophylla*; glaberrima erecta, foliis oblongo-ovatis in acumen longum attenuatis longiuscule petiolatis, racemis laxis nutantibus 4–6-floris, laciniis calycinis subulatis, corollæ tubo basi angustato dein subcampanulato, limbi lobis rotundatis acutis patentibus.

If the number of nectarial glands constitutes the distinction between *Echites* and *Dipladenia,* this must fall into the latter genus; but I can, neither under that, nor under *Echites,* described by Alphonse De Candolle in his elaborate account of *Apocynaceæ* in the Prodromus, find any species that will accord with this. It is from the collection of Mr. Veitch of Exeter, who raised it from seeds received from the Organ Mountains, Brazil: it consequently requires stove heat. It is a handsome bushy plant, with copious foliage and deep salmon-coloured flowers, inclining to purple, which hang down gracefully among the leaves.

DESCR. Fruticose, much branched, glabrous. *Branches* terete, swollen at the joints. *Leaves* opposite, (the rather long petioles articulated on the swollen portion of the joint) between ovate and oblong, obtuse at the base, tapering above into a long point; the

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texture is submembranaceous. *Racemes* on slender, drooping, flexuose *peduncles*, from the axils of the leaves. *Pedicels* more or less elongated. *Calyx* small, deeply five-lobed: the *segments* subulate, appressed. *Corolla* large, handsome; the *tube* tawny yellow, within and without, narrow and cylindrical at the base, the rest narrow campanulate: the *limb* of five large, deep, salmon-coloured, rotundate, obliquely spreading, acute *lobes*. *Stamens* included: *filaments* hairy, inserted at the top of the narrow portion of the tube of the corolla. *Anthers* oblong, monadelphous. *Ovaries* two, with two large opposite *glands* at the base. *Styles* united: *stigma* large, umbraculiform, five-angled, with two points at the apex, concealed within the stamens.

Fig. 1. Lower part of the tube of the corolla, showing the stamens. 2. Pistil. 3. Ovaries and glands:—*magnified*.

4415.

Fitch del. et

R. B. & R. imp.

Tab. 4415.

VRIESIA glaucophylla.

Glaucous-leaved Vriesia.

Nat. Ord. Bromeliaceæ.—Hexandria Monogynia.

Gen. Char. (*Vide supra*, Tab. 4382.)

Vriesia *glaucophylla*; foliis longissime subulatis glaucis subfarinosis, scapo superne ramoso, ramis e basi ad apicem disticho-bracteatis spicas formantes, bracteis ovato-lanceolatis conduplicato-carinatis acutis unifloris inferioribus coloratis, floribus semiexsertis, petalis pupurascentibus filamentis purpureo-maculatis brevioribus.

From the interior of Santa Martha, New Grenada, whence it was sent by our Collector, Mr. Purdie, to the Royal Gardens of Kew. Suspended from a piece of wire from the beam of the Orchideous stove, it produced its flowering spikes in August, 1848. I refer it to *Vriesia* of Dr. Lindley, with which it quite agrees in habit; but the whole family of *Bromeliaceæ* require a careful revision, which should be accomplished through the aid of living specimens, were it possible. They lose much of their character when dried for the Herbarium, and are indeed too much neglected by travellers.

Descr. A moderate-sized, Aloe-like *plant*, without stem: the *leaves* imbricated, round a rather tumid base, spreading, recurved, a foot or a foot and a half long, from a broad, and rather concave base, gradually tapering into a very long slender, acuminated point, of a firm texture and of a bluish colour, the effect, as it would appear, of a subfarinose or flocculose clothing. From the centre of the plant arises the *scape*, red, about as thick as one's finger, distantly bracteated, a foot and more long, above divided into four or five branches or *spikes*, a span in length, clothed from the base to the summit, with large, distichous, complicato-carinate, very acute, closely imbricated, ovato-lanceolate, rigid *bracteas*, the lower ones red, somewhat flocculose, the rest green, tinged with yellow and red. Each bears a *flower*, of which one only is quite in perfection at a time upon each spike, much protruded beyond the bractea, erect. *Calyx* of three, greenish-white, erect, appressed membranaceous *scales*. *Corolla* of three convolute, purple, erect *petals,* almost white at the apex. Protruding beyond the corolla are six long *filaments,* three longer and three shorter, beautifully spotted, or banded with purple. *Anthers* versatile, dark purple. *Style* a little longer than the stamens. *Stigmas* yellow, crested.

Fig. 1. Flower :—*magnified.*

4416.

TAB. 4416.

SWAINSONA GREYANA.

Grey's Swainsona.

Nat. Ord. LEGUMINOSÆ.—DIADELPHIA DECANDRIA.

Gen. Char. *Calyx* bicallosus (?) 5-dentatus. *Vexillum* explanatum majus. *Stamina* diadelpha (9 et 1). *Carina* obtusa alis sublongior. *Stigma* terminale. *Stylus* postice longitudinaliter barbatus, antice imberbis. *Legumen* turgidum.—Suffrutices Novæ Hollandiæ, *habitu* Lessertiæ. Folia *impari-pinnata*. Racemi *elongati axillares*. Flores *purpurei aut coccinei. De Cand.*

SWAINSONA *Greyana*; suffruticosa incano-tomentosa, foliolis 3–8-jugis oblongis retusis, racemis multifloris folio longioribus, calycibus lanatis bibracteatis, leguminibus glabris inflatis stipite andrœcio longiore. *Lindl.*

SWAINSONA Greyana. *Lindl. Bot. Reg.* 1846, *t.* 66.

The finest, by far, of all the *Swainsonas,* and much resembling the handsome *Cyclogyne canescens,* Benth., of Swan River. The generic characters, however, are very different as seen upon an analysis of the flower, and our plant belongs to a different region of Australia, having been found exclusively, we believe, on the banks of the Murray, where it was first detected by Sir Thomas Mitchell, and in the neighbourhood of Port Adelaide, South Australia. We possess fine native specimens in a collection from the latter country, presented to us by the Dowager Countess of Stradbroke.

The species requires the protection of a cool greenhouse, and would probably bear our summers in the open border. It blossoms from June to August, and has been cultivated most successfully by Mr. Ingram of the Exotic Nursery, Southampton, to whom we are indebted for the specimen here figured, which had been raised from Port Adelaide seeds.

DESCR. A half shrubby *plant,* about two feet high, hairy with short down. *Stems* obscurely striated, branched. *Leaves,* a span long, pinnated with about eight pairs of oblong, obtuse or retuse *leaflets,* and an odd terminal one. *Stipules* ovate, acuminate. *Racemes* often a foot long, axillary, peduncled, much longer than the leaves. *Pedicels* bracteated. *Flowers* large, handsome, purple. *Calyx* cup-shaped, hoary, with an appressed bractea on each side at the base. *Vexillum* very large, with a conspicuous, white, eye-like spot in the centre. *Alæ* oblong. *Carina* boat-shaped, obtuse. *Stamens* diadelphous ($\frac{1}{9}$). *Anthers* yellow. *Ovary* linear, stipitate. *Style* subulate, curved upwards, with a line of hairs on its upper side.

Fig. 1. Calyx, stamens, and pistil. 2. Vexillum. 3. Ala. 4. Carina. 5. Pistil:—*magnified.*

appropiate name than that of the zealous and intelligent explorer of those far off regions. I learn from Prince Salm-Dyck that a *Cereus*, probably the same species, was sent to England by Mr. Potts, of Chihuahua, but his specimens also did not live; they were very remarkable for having a thick turnip-shaped root. Neither Dr. W. nor Dr. G. having paid attention to the root, I am unable to say whether their specimens agree with those of Mr. Potts in this particular.

Dr. Wislizenus was forced to go from Chihuahua westward to Cosihuiriachi. However prejudicial this involutary interruption of his journey may have been to the primary objects of his expedition, it appears that he could not have selected a more favourable field for botanical researches. Amongst the porphyry mountains of Cosihuiriachi and Llanos, which vary from 6,000 to 8,000 feet in height, and their deep chasm-like valleys, a great many undescribed species of plants were found; in fact almost everything collected there appears to be new!

Amongst the trees, I mention three species of pines, entirely different from those found farther north, but perhaps identical with some species from the Pacific coast. The most magnificent of these three is a species nearly related to *Pinus strobus* and *Pinus flexilis*, which I name *P. strobiformis.* Its size and growth, its foliage, as well as the shape of the cones, resemble the common white pine of the north, but the cones are two or three times as large, not to speak of the other differences. It only grows on the highest mountains of this region, of about 8,000 feet elevation, and attains the height of 100 to 130 feet.

Pinus macrophylla, another inhabitant of the higher mountains of Chihuahua, is more common than the last; like it, it closely resembles a well-known species of the United States, *P. australis,* from which it differs by its short cones, which have on each scale a mammillary recurved tubercle, and by having the leaves not only in threes, but also in fours and even in fives. It may be near *P. occidentalis* of the interior of Mexico, but that has regularly five leaves in each sheath.

P. Chihuahuana is the common pine of Cosihuiriachi and the mountains of Chihuahua, in general at an elevation of about 7,000 feet. It grows only thirty to fifty feet high, and resembles somewhat *P. variabilis,* though sufficiently distinct. Dr. Wislizenus was unable to obtain specimens of a fourth pine, which is said to grow on the still higher mountains to the west, near Jesus-Maria, bearing cones fifteen or eighteen inches in length.

On the highest peaks in this region a species of *Arbutus* was found, which the inhabitants call *Matronia*; it is a small tree with a smooth, red bark, bearing in November and December red edible berries. If it is at all distinct from *A. Menziesii*, Pursh, of the northwest coast, which it closely resembles, it ought, from the colour of its bark, to bear the name of *A. sanguinea.* These, together with a low scrubby oak tree, with small perennial leaves, were the only trees collected about Cosihuiriachi. A species of *Juniperus* with red berries, a *Thuja*, and a small-leaved *Cowania* (?), all of them in fruit, were also brought from there.

Between Chihuahua and Cosihuiriachi, but especially about the latter place, the porphyritic soil produced a number of *Cactaceæ*, some strange *Echinocacti*, several *Mammillariæ*, a few *Opuntiæ*, and principally a great variety of *Echinocerei*. One of the latter is completely covered with stout and long spines; another has short radiating spines, closely adpressed to the plant; a third has short radiating spines with single, stout black central ones, which project from the plant in all directions; a fourth is distinguished by its longer and curved reddish radiating spines, with a stouter one projecting from their centre. I have all of these in cultivation, but have not as yet seen flowers or fruit from any one of them; still they cannot but belong to my genus *Echinocereus*, to judge from analogy.

Some *Mammillariæ* of Cosihuiriachi are distinguished by their compact shape; the tubercles are very short, globose, or even hemispherical, the spines strong, numerous, radiating, and adpressed, the fruits central from a woolly vertex: *Mammillariæ compactæ.* Another, *M. gummifera*, belongs together with two species from Texas, and from the mouth of the Rio Grande to the section *Angulares*, with pyramidal 4-angled tubercles, and milky juice, which hardening forms a gum. A third species belongs to *Crinitæ*, and is a most elegant little plant with numerous hair-like radiating and one stout, hooked, central spine; I have named it *M. barbata.* The specimen communicated by Dr. Wislizenus, the only one found, was dead when it arrived here, but many fruits were adhering to the plant, and I was thus fortunate enough to cultivate it from the seeds.

Other remarkable *Cactaceæ* from the State of Chihuahua, which have been communicated to Dr. Wislizenus by Mr. Potts, of Chihuahua, are not described here, as it is believed that Mr. P. has sent them already to England, where, no doubt long before this, they have been published.

Amongst the other distinguished plants of Cosihuiriachi and Llanos, I cannot omit to mention a beautiful *Delphinium*, which grew abundantly here; a *Silene*, which is perhaps new, but comes near to *S. multicaulis,* Nutt., of the Rocky mountains, and *S. Moçiniana,* DC. of Mexico; a new *Bouvardia,* which is remarkably distinct from all the other Mexican species of this genus by its smoothness; an *Echiveria* perhaps identical with the Californian *E. cæspitosa,* DC.; several *Gerania,* which appear to be undescribed, one of them with white flowers; an *Eryngium,* with the lowest leaves most elegantly pectinated, and the upper ones palmately divided; a *Zinnia,* intermediate between *Zinnia multiflora* and *Z. elegans,* and which last season grew finely near St. Louis from seeds picked from these specimens. Many other *Compositæ* have not yet been examined; a *Centaurea* may be found to be distinct from *C. Americana,* so far the only American species of that genus, which is so extensively diffused in the old world.

Leaving aside several *Daleæ, Lupini, Giliæ,* a *Gentiana, Buchnera, Castilleja* a number of *Labiatæ, Gramineæ,* and many others, I will only mention a few more, which I had time to study more closely. First of all, the beautiful and delicate *Heuchera sanguinea,* probably the most southern, and certainly the most ornamental, species of that genus. Next in beauty comes the bright-flowered *Pentstemon coccineus*; *Lobelia mucronata,* with fine red, and *L. pectinata,* with blue flowers. Amongst the most curious plants collected here is also to be mentioned an *Eriogonum* with inflated clavate internodia and dark red flowers. *Phaseolus bilobatus* is another interesting plant.

In the following spring Dr. Wislizenus accompanied the Missouri volunteers, under Colonel Doniphan, from Chihuahua to Parras, Saltillo, Monterey, and Matamoras.

Zealous as ever, he again made large collections on his tour, but his duties as a military surgeon occupied his time rather more than the naturalist should have desired. Nevertheless his collections are very full. Fortunately Dr. Gregg accompanied the same expedition, and also made rich collections in that almost unknown region, which we may consider as the southwestern limits of the valley of the Rio Grande.

Before going into the detail I will only remark here, what a reference to the map and sections will more fully present, that the country between Chihuahua and Parras has a general elevation of from 4,000 to 5,000 feet; between Parras and Saltillo it rises from 5,000 to 6,000 feet, and thence it rapidly descends towards the lower Rio Grande.

South of Chihuahua, a curious leafless *Euphorbia* was collected, with tuberous roots and leafless stem, nevertheless apparently a near relative of *E. cyathophora.* Here, for the first time, *Berberis trifoliata*, Moric., was met with, which appears to inhabit the whole middle and lower valley of the Rio Grande, as we find it again in this collection from Monterey, and Mr. Lindheimer has sent beautiful specimens from the Guadaloupe, in Texas.

Echinocerei and *Echinocacti* appear in greater abundance. The re-discovery of the beautiful *Echinocereus pectinatus* (*Echinocactus pectinatus*, Schiede., *E. pectiniferus*, Lem., *Echinopsis pectinata*, Salm, in part) is peculiarly interesting, as it furnishes the means of proving a Texan species, which has been confounded with it, to be entirely distinct. The description of the plants (which died without producing flowers), found in several works, as well as in the latest publication on *Cactaceæ*, before me, of *Foerster*, *Leipzig*, 1846, was made, as Prince Salm informed me, from specimens sent from Chihuahua by Mr. Potts; it entirely agrees with my specimen from the same region. But the description in Foerster's work of the *flower* of a specimen in Cassel, flowering in 1843, (not known from where obtained,) shows *that* to be identical with a Texan species, common between the Brazos and Nueces rivers, which I have described in Engelmann and Gray's Plantæ Lindheimerianæ, Boston Journal of Natural History, vol. v. p. 247, under the name of *Cereus cæspitosus*, and which should now be named *Echinocereus cæspitosus*. *Echinopsis pectinata*, *β. lævior*, Monv., and *γ. Reichenbachiana*, Salm, are perhaps forms of this Texan plant, which varies considerably in its native country. Dr. Wislizenus has sent me a living specimen and dried flowers of *E. pectinatus*; unfortunately the plant met with a similar fate to those sent to England by Mr. Potts, and there is none now in cultivation, if I am correctly informed; but I preserve the dried specimens in my herbarium, and have been enabled to draw up from it the description.

Near San Pablo another *Echinocereus* was found, and dried flowers, as well as living specimens, have safely arrived here. A large *Echinocactus* was collected near Pelayo; unfortunately no flowers were seen; but the specimen brought to St. Louis is so far in fine condition. Of another smaller, but most elegant species of the same genus, Dr. Wislizenus collected the living plant and flowers, and Dr. Gregg the ripe fruit. It is distinct from the other *Echinocacti* found in those regions by the membranaceous very thin sepaloid scales on the tube of the flower, and the juicy glabrous fruit, in which respect it resembles my *E. setispinus* from Texas; *E. Texensis*, Hpfr., has a juicy fruit, covered with woolly and spiny scales; *E. Wislizeni* and others have a dry fruit, covered with hard scales.

My *Opuntia frutescens* (Plant. Lindh. l. c. p. 245.) which had been collected by Mr. Lindheimer along the Colorado and Guadaloupe rivers, in Texas, was also found south of Chihuahua by Dr. Wislizenus, and again along the route near Parras, and below Monterey. The suggestion made in the Plant. Lindh., that it may be a southern variety of *O. fragilis* of the Upper Missouri, has proved to be erroneous, as they belong to quite distinct sections of the genus *Opuntia*; *O. frutescens*, together with *O. vaginata*, is one of the *Opuntiæ cylindraceæ graciliores*, and is apparently nearly related to *O. leptocaulis* DC., but is easily distinguished by its strong, white, single spines, while the latter has three short blackish bristles.

Agave Americana, with several relatives, was found in abundance on this part of the route; *Argemone Mexicana*, white, yellow, or rose-coloured, was frequently met with; *Samolus ebracteatus* occurred in moist places thus far inland, and on these elevations, while before it was only known as a littoral plant; *Malvaceæ*, *Oenotheræ*, *Asclepiadaceæ*, *Giliæ*, *Solaneæ*, *Justiciæ*, shrubby *Labiatæ*, were collected of many different species; but the great characteristic of the country were the shrubs forming the often impenetrable thickets, called "chaparrâls." They are mostly spinous, very much branched, often with remarkably small leaves, and not rarely with edible fruits. Amongst them many rhamnaceous and celastraceous shrubs, and some *Euphorbiaceæ*, were particularly conspicuous, as well as some *Mimoseæ*, one of which I must not forget to mention, because it is perhaps the smallest shrub in this family; not more than one or two inches high, with diminutive leaflets, but large purple flowers; it was collected near Chihuahua.

One of the most offensive of these chaparrâl-shrubs was the *Kœberlinia*, Zucc., called *Junco*, (Gregg.); a small tree rather than a shrub, about ten feet high, stem four to six inches in diameter; wood hard, dark brown with white alburnum; terminal branches green, with a dark brown spinous point, one to two inches long, and one and a half to two lines in diameter; very small subulate leaves soon deciduous; small white flowers in short lateral racemes; fruit not seen; in flower in May. It was frequently seen from south of Chihuahua to Monterey, (and Matamoros. *Gregg.*)

We find here again the interesting *Chilopsis* mentioned above, also *Larrea glutinosa*, and another zygophyllaceous shrub, a true *Guajacum*, which appears to be an undescribed species; it belongs to those plants that connect the Mexican with the Texan flora, as we find it extending from Parras to Monterey, and from thence to the Upper Colorado, in Texas. *Tecoma Stans* re-appeared here with smaller pubescent leaves and more alate petiole, through probably not distinct from the larger and smoother plant found below Paso.

The beautiful *Fouquiera splendens,* with its panicles of long tubular crimson flowers, rose here above all other shrubs; in some instances it reached a height of from twenty to thirty feet, and perhaps more, always in single stems.

A few species of *Yucca,* together with *Opuntia arborescens,* formed almost the only trees on the arid plains. But in the valley of the Nazas occur stately trees of a species of *Algarobia,* distinct from the *A. glandulosa* of the north, with broader legumes, larger seeds, and few or no glands on the leaves.

About Saltillo *Echinocactus Texensis,* Hpfr., (*E. Lindheimeri,* Engelm., in Plant. Lindh. l. c.,) was found, which extends from here to Matamoros, and to the Guadaloupe and Colorado, in Texas. The pretty *Mammillaria strobiliformis* grows on rocks near Rinconada. *Hunnemannia fumariæfolia,* Sweet, was collected near Saltillo, with smaller flowers, (an inch and a half in diameter,) and near Rinconada, with larger ones, (three inches in diameter); an interesting plant, the eastern representative of the Californian *Eschscholtzia,* but perennial, with a small torus, a different stigma, &c.

I cannot omit introducing here a beautiful shrub discovered on the rocks about Agua Nueva and Buena Vista by Dr. Gregg. Depending upon Don's characters of *Cowania* as correct, I must consider this plant as the type of a new genus, which I have great pleasure to dedicate to its indefatigable discoverer, my friend Dr. Josiah Gregg, whose name has already been frequently mentioned in these pages. *Greggia rupestris* is a lovely, sweet-scented shrub, with flowers resembling roses in shape and colour, so that Dr. Gregg was induced to name it the " Cliff rose."

North and north-east of Monterey we reach the lower country, and with it a different vegetation; here is the home of the shrubby *Cassieæ* (*Parkinsonia, Casparea,* &c.,) aud *Mimoseæ*; *Sophora, Diospyros,* some species of *Rhus* and *Rhamnus* are common here, as well as a climbing yellow-flowered *Hiræa,* while another erect, red-flowered species grows on the table-lands near Parras. One of the most beautiful shrubs of that district is *Leucophyllum Texanum,* Benth., with its whitish, tomentose leaves, and sweet-scented blue flowers. It is common from San Antonio, in Texas, to Monclova, and from Cerralbo to Camargo, but it is not seen on the table-lands.

Vitis bipinnata and *V. incisa,* well known in the south-western parts of the United States and Texas, were also found here. Remarkable herbaceous plants were a *Nicotiana*, an *Orobanche* (on the sea-coast,) a *Eustoma*, several *Asclepiadaceæ*, *Malvaceæ*, *Cucurbitaceæ*, *Labiatæ*, and others. *Lobelia phyllostachya* has already been mentioned above.

Hasty and imperfect as this notice of the collections of Dr. Wislizenus is, it cannot but impress the botanist with the richness and novelty of the Flora of these countries, and invite the arduous explorer to further exertions.

GEORGE ENGELMANN, M.D.

ST. LOUIS, December, 1847.

commences between Plate 4397 & 4398